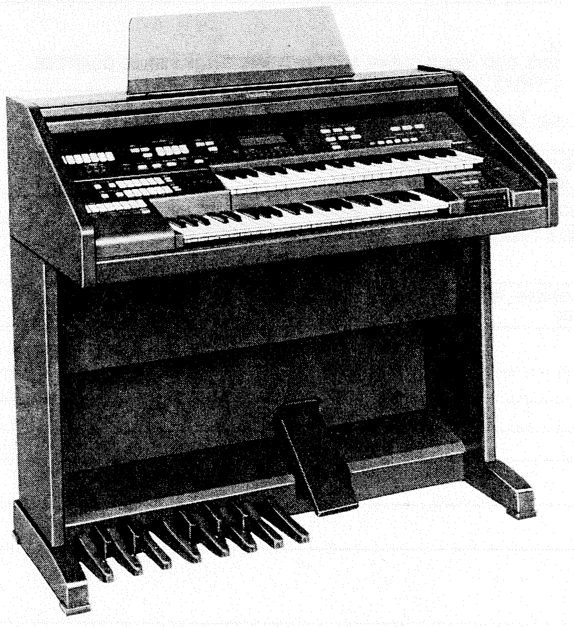
ORDER NO. EMID941562
A4

Service Manual

Electronic Organ
SX-EA3

(M), (MC), (XM), (EN), (EH), (EF), (EZ), (EW), (EA), (EP), (EK), (XL), (XR), (XS), (XD), (X), (XT)



AREAS

(M):	U.S.A.
(MC):	Canada
(XM):	Mexico
(EN):	Norway, Sweden, Denmark, Finland
(EH):	Holland, Belgium
(EF):	France, Italy
(EZ):	Germany
(EW):	Switzerland
(EA):	Austria
(EP):	Spain,Portugal,Greece
(EK):	the United Kingdom
(XL):	New Zealand
(XR):	Australia
(XS):	Malaysia, Singapore, South Africa
(XD):	Saudi Arabia, Kuwait
(X):	the Middle East, Indonesia, Hong Kong, the Philippines, Thailand
(XT):	Taiwan

⚠ **WARNING**

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

■ Specifications

KEYBOARD			UPPER KEYBOARD: 44 KEYS, LOWER KEYBOARD: 44 KEYS PEDAL KEYBOARD: 13 KEYS
SOUND GENERATOR			PCM
MAXIMUM NUMBER OF NOTES PRODUCED SIMULTANEOUSLY			32 NOTES
SOUND	ORCHESTRAL CONDUCTOR (UPPER/LOWER)		ORGAN, SOUND 1, SOUND 2
	SOUND GROUP (UPPER/LOWER) 90 SOUNDS		GROUP: PIANO, ELECTRIC PIANO/HARPSICHORD, GUITAR, STRINGS/VOCAL, BRASS, MALLET, SPECIAL PERC, REED, SAX/FLUTE, SYNTH
	ORGAN	PRESET	16 (UPPER/LOWER)
		TAB	UPPER: 16', 5-1/3', 8', 4', 2-2/3', 2', PERC 2-2/3' LOWER: 8', 4', 2-2/3', 2'
	BASS PEDALS (23 SOUNDS)		GROUP: ORGAN, STANDARD, CONTEMPORARY, CLASSICAL ORGAN, ORCHESTRAL
EFFECT	TREMOLO & CELESTE		UPPER ORGAN, LOWER ORGAN, TREMOLO SLOW/FAST
	SUSTAIN		UPPER ORGAN, LOWER ORGAN, UPPER SOUND GROUP, LOWER SOUND GROUP, BASS PEDALS
	DIGITAL EFFECT		UPPER SOUND GROUP, LOWER SOUND GROUP, BASS PEDALS
	DIGITAL REVERB		○
TRANSPOSE			G-C-F#
TECHNI-CHORD			○
RHYTHM (100 RHYTHMS)			GROUP: 8 BEAT, 16 BEAT, BIG BAND/SWING, JAZZ COMBO, COUNTRY/RHYTHM & BLUES, MARCH/POLKA, LATIN, ROCK/DISCO, MODERN ROCK, ROCK (OTHERS), SHOW TIME, TRAD, WALTZ, ETHNIC
CONTROLS			MAIN VOLUME, BALANCE, START/STOP, INTRO & ENDING, FILL IN 1, 2, VARIATION, COUNT INTRO, SYNCHRO & BREAK, TEMPO, KEYBOARD PERCUSSION, CONTRAST, EXPRESSION PEDAL, FOOT SWITCH

Technics

© 1995 Matsushita Electric Industrial CO. , LTD. All rights reserved.
Unauthorized copying and distribution is a violation of law.

AUTO PLAY CHORD	ONE FINGER, FINGERED, PIANIST, MEMORY
EASY PLAY STYLE	ONE TOUCH REGISTRATION, ONE TOUCH PLAY/MUSIC STYLE SELECT, MUSIC STYLE ARRANGER
PANEL MEMORY	1-5, SET
COMPOSER	5 PARTS: ACCOMP 1, 2, 3, BASS DRUMS STORAGE CAPACITY: APPROX. 8600 NOTES INPUT MODES: REAL TIME RECORD, STEP RECORD FUNCTIONS: MODE SELECT, PATTERN COPY, LOAD SINGLE COMPOSER PATTERN MEMORY: 2 BANK × 6
SEQUENCER	16 TRACKS STORAGE CAPACITY: APPROX. 28000 NOTES INPUT MODES: EASY RECORD, REAL TIME RECORD, STEP RECORD FUNCTIONS: PUNCH RECORD, TRACK ASSIGN, EXPRESSION SETTING, EDIT (SONG CLEAR, TRACK CLEAR, TRACK MERGE, QUANTIZE, MEASURE ERASE, MEASURE COPY, MEASURE DELETE, MEASURE INSERT, VELOCITY CHANGE), PLAY, MEDLEY
DISK DRIVE	3.5 INCH (FOR 2HD, 2DD) FUNCTIONS: DISK SAVE, DISK LOAD, MIDI FILE SAVE, MIDI FILE LOAD, DISK FORMAT, LOAD SINGLE COMPOSER PATTERN, LOAD SINGLE SOUND MEMORY
SOUND	PART SETTING (SUSTAIN, REVERB, KEY, TUNING, VOLUME, BEND RANGE, ASSIGN MODE), REVERB SETTING, TREMOLO SETTING, MASTER TUNING, TECHNI-CHORD TYPE, GLIDE SETTING, ORGAN EFFECT
MEMORY & CONTROL	INITIAL SETTING, FOOT SWITCH, POWER ON MODE, PANEL MEMORY MODE, MUSIC STYLE ARRANGER MODE, LANGUAGE
SOUND EDIT	EASY EDIT, GENERAL EDIT (OCTAVE SHIFT, VIBRATO, AUTOBEND & TRILL), TONE EDIT (TONE, VOLUME & PITCH, ENVELOPE, FILTER), EFFECT EDIT MEMORY: 2 BANK × 18 (UPPER/LOWER), 1 BANK × 16 (BASS)
MIDI	BASIC CHANNEL, CONTROL MESSAGE, OCTAVE SHIFT & LOCAL ON/OFF, REAL TIME MESSAGE, COMMON, PANEL MEMORY OUTPUT, MIDI PRESETS, INPUT SETTING, OUTPUT SETTING, GENERAL MIDI
DISPLAY	LCD (240 × 64 DOTS) CONTRAST, EXIT, DISPLAY HOLD, MORE/RETURN
DEMO	○
TERMINALS	LINE OUT, PHONES 1, 2, AUX IN, MIDI (IN, OUT, THRU)
OUTPUT	60 W
SPEAKER	20 cm × 1, 6.5 cm × 2 (13 cm × 6 cm) × 1
POWER REQUIREMENT	155 W 105 W (NORTH AMERICA AND MEXICO)
	AC 120/220/240 V 50/60 Hz AC 120 V 60 Hz (NORTH AMERICA AND MEXICO) AC 230 V 50/60 Hz (NEW ZEALAND) AC 230-240 V (EUROPE)
DIMENSIONS (W × H × D)	111.3 cm × 115.8 cm × 60.3 cm (43-13/16" × 45-19/32" × 23-3/4")
NET WEIGHT	59 Kg (130.1 lbs) (WITHOUT BENCH)

*Specification are subject to change without notice for further improvement.

WARNING

To prevent the risk of fire, smoke, or electrical shock and to ensure safe operation, please be sure to follow the safety guidelines below.

1. At places where special caution is required, the necessary safety precautions are clearly labeled or printed, for example, on the cabinet, or on the part concerned. Please follow these safety precautions, and also those listed in the Owner's Manual.
2. Parts which have a ⚠ mark in the circuit diagram or in the parts list are essential for safety. When replacing these parts, be sure to use only the specified parts.
3. Use the specified types for internal wiring (double-insulated wiring, etc.).
4. When replacing parts on the AC primary side (power transformer, electric switch, electrical cord, noise-prevention condenser, etc.), wind the lead wire and secure it by soldering.
5. Do not let the wiring come into contact with heat-emitting devices (fuse resistor, radiator plate, etc.).
6. When replacing the wiring, make sure that it is not in contact with the unfinished or rough edge of a part.
7. When replacing the power cord (except for the plug-in type), tug it from various directions to confirm that it does not slip out of place.
8. Spacing
   If soldering was done on the AC primary circuit, confirm that the interval between the soldered terminals or between the terminal and surrounding metallic parts is at least the minimum required (Between the primary circuit and the chassis: at least 6.5 mm; between primary circuit terminals: at least 4.0 mm; between primary circuit terminals and secondary circuit terminals: at least 6.5 mm.).

CONTENTS

■ INTRODUCTION

SAFETY PRECAUTION I-2
HOW TO ASSEMBLE THE ORGAN I-3
ARRANGEMENT OF CONTROL PANEL I-4
BASIC FUNCTIONS I-4
TERMINALS I-7
INITIAL SETTING I-7
KEYBOARD RANGES I-8
PARTS LOCATION I-9
DISASSEMBLY INSTRUCTIONS I-10
ERROR DISPLAY I-14
SYMPTOMS WHICH APPEAR TO BE SIGNS OF TROUBLE I-15
ABOUT THE SELF-DIAGNOSTIC FUNCTION I-17
MIDI IMPLEMENTATION CHART I-19
PRECAUTIONS BEFORE SERVICING I-21

■ SCHEMATIC DIAGRAMS

WIRING CONNECTION Diagram II-1
BLOCK Diagram II-3
MAIN MAIN P. C. Board II-6
MAIN MAIN P. C. Diagram II-9
AS ACP AS/ACP P. C. Board II-13
AS ACP AS/ACP P. C. Diagram II-15
CPSQ JACK CPSQ/JACK II-17
CPSL CPSL P. C. Diagram II-20
CPSL CPSL P. C. Board II-23
CPR CN CPR/CN P. C. Board II-25
CPR CN CPR/CN P. C. Diagram II-27
CPL CPL P. C. Board II-29
CPL CPL P. C. Diagram II-31
PKB EXP PKB/EXP II-33
MKBU MKBL MKBU/MKBL P. C. Board II-35
MKBU MKBL MKBU/MKBL P. C. Diagram II-38

■ REPLACEMENT PARTS LIST

P. C. Board/WIRING III-1
CABINET PARTS LOCATION III-9
CABINET/CHASSIS PARTS III-12
PACKING III-14

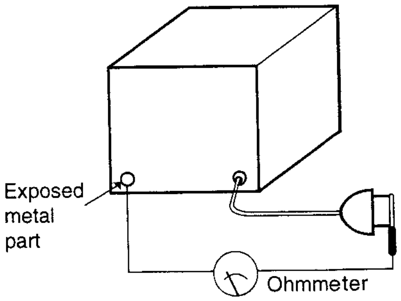
SAFETY PRECAUTION (This "safety precaution" is for the U.S.A. only)

● Safety Precaution

1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only the manufacturer's recommended components for safety.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc. .
5. Before returning the serviced equipment to the customer, be sure to make the following insulation resistance test to prevent the customer from being exposed to a shock hazard.

● Insulation Resistance Test

1. Unplug the power cord and short the prongs of the plug with a jumper wire.
2. Turn on the power switch.
3. Measure the resistance value with an ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screw heads, connectors, control shafts, handle brackets, etc. . Measurements should range from 4 MΩ to infinity for all exposed parts.

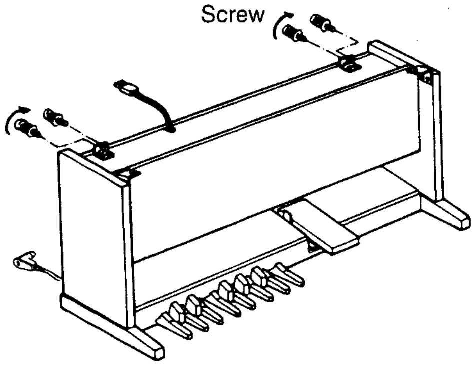


Resistance = 4MΩ to ∞

HOW TO ASSEMBLE THE ORGAN

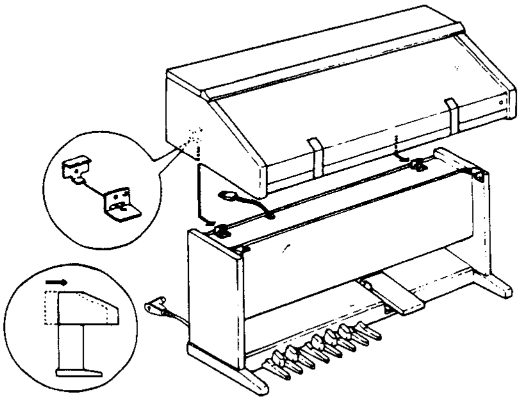
- To prevent the upper organ part from falling off the lower organ part, secure it firmly with the screws.

1 On the lower organ part, remove the four screws from the metal joints. Lay the cords to the back of the lower organ part.



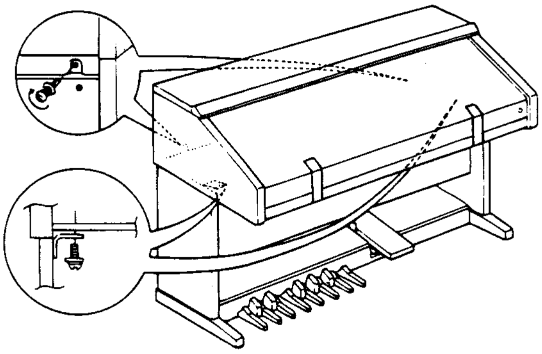
[Fig. 1]

2 Place the upper organ part on the lower organ part, making sure to fit the metal pieces together.



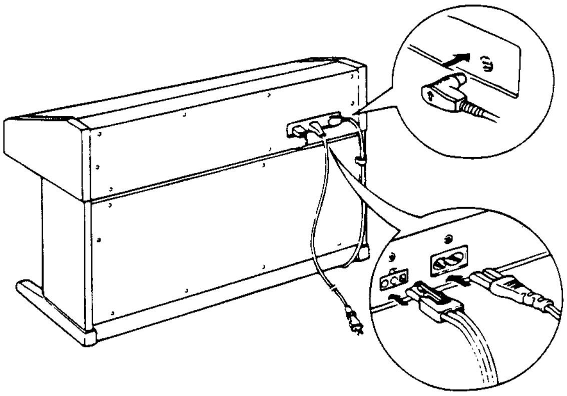
[Fig. 2]

3 Using the four screws removed in step 1, secure the upper organ part to the lower organ part as shown in figure.



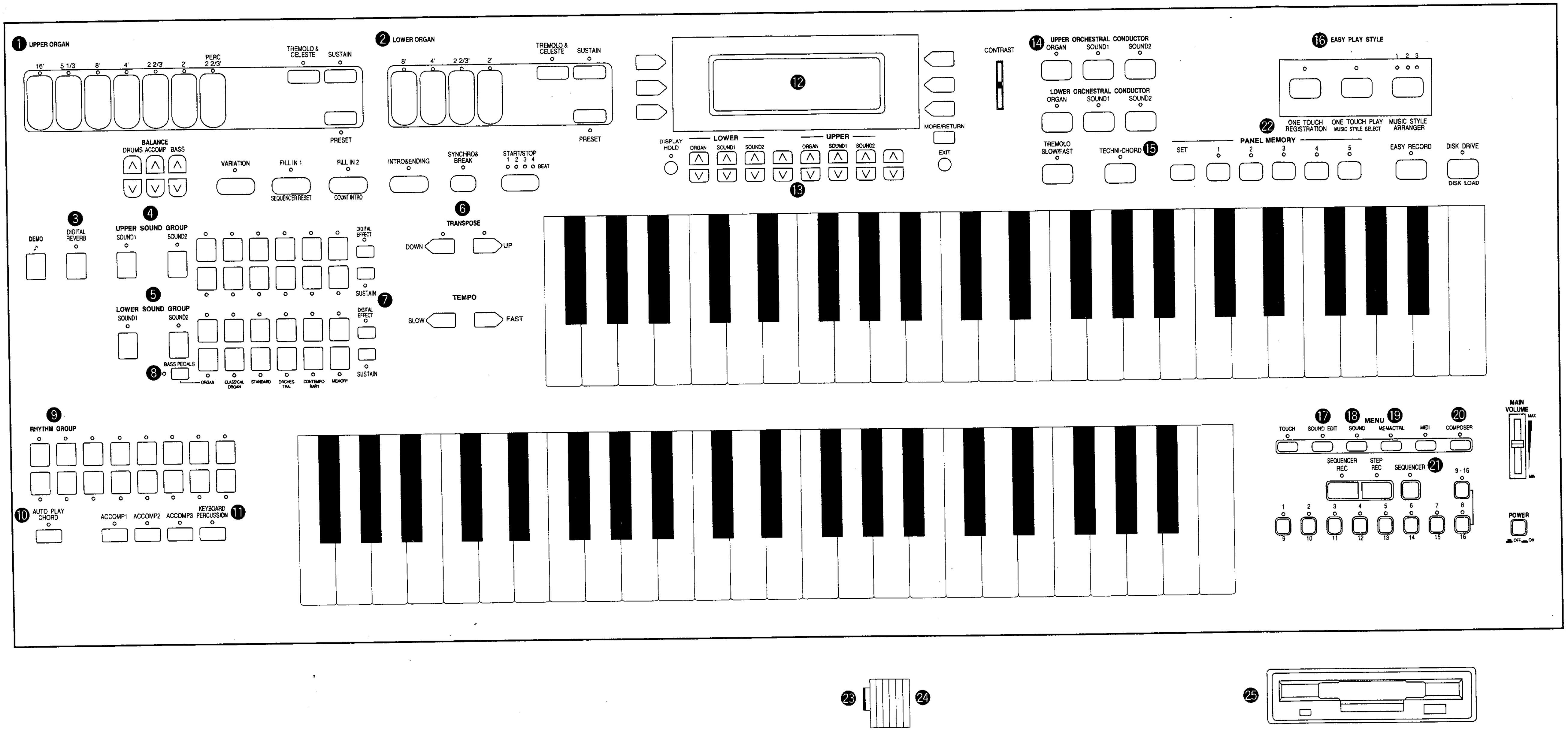
[Fig. 3]

4 Connect the two cords from the lower unit and the power cord to the terminals on the upper unit.



[Fig. 4]

ARRANGEMENT OF CONTROL PANEL


① UPPER ORGAN
16'
5 1/3'
8'
4'
2 2/3'
2'
PERC 2 2/3'
TREMOLO & CELESTE
SUSTAIN
PRESET
② LOWER ORGAN
8'
4'
2 2/3'
2'
TREMOLO & CELESTE
SUSTAIN
PRESET
BALANCE
DRUMS
ACCOMP
BASS
VARIATION
FILL IN 1
SEQUENCER RESET
FILL IN 2
COUNT INTRO
INTRO&ENDING
SYNCHRO& BREAK
START/STOP
1 2 3 4 BEAT
DEMO
③ DIGITAL REVERB
④ UPPER SOUND GROUP
SOUND1
SOUND2
DIGITAL EFFECT
SUSTAIN
⑤ LOWER SOUND GROUP
SOUND1
SOUND2
DIGITAL EFFECT
SUSTAIN
⑦
⑧ BASS PEDALS
ORGAN
CLASSICAL ORGAN
STANDARD
ORCHES-TRAL
CONTEMPO-RARY
MEMORY
⑥ TRANSPOSE
DOWN
UP
TEMPO
SLOW
FAST
⑨ RHYTHM GROUP
⑩ AUTO PLAY CHORD
ACCOMP1
ACCOMP2
ACCOMP3
KEYBOARD PERCUSSION ⑪
⑫
DISPLAY HOLD
LOWER
ORGAN
SOUND1
SOUND2
UPPER
ORGAN
SOUND1
SOUND2
⑬
MORE/RETURN
EXIT
CONTRAST
⑭ UPPER ORCHESTRAL CONDUCTOR
ORGAN
SOUND1
SOUND2
LOWER ORCHESTRAL CONDUCTOR
ORGAN
SOUND1
SOUND2
TREMOLO SLOW/FAST
TECHNI-CHORD ⑮
⑯ EASY PLAY STYLE
1 2 3
㉒ ONE TOUCH REGISTRATION
ONE TOUCH PLAY MUSIC STYLE SELECT
MUSIC STYLE ARRANGER
PANEL MEMORY
SET
1
2
3
4
5
EASY RECORD
DISK DRIVE
DISK LOAD
⑰
⑱
MENU
⑲
⑳
TOUCH
SOUND EDIT
SOUND
MEM&CTRL
MIDI
COMPOSER
SEQUENCER REC
STEP REC
SEQUENCER ㉑
9 - 16
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
MAIN VOLUME
MAX
MIN
POWER
OFF
ON
㉓
㉔
㉕

BASIC FUNCTIONS

① UPPER ORGAN
Select the organ sounds to be played on the upper keyboard. The volume is adjusted with the respective buttons below the display.

② LOWER ORGAN
Select the organ sounds to be played on the lower keyboard.

③ DIGITAL REVERB
Add reverberation to the sound.

④ UPPER SOUND GROUP
With this block of buttons, you select the sound for each of two sound parts. First you select a part, and then you select one of the many preset sounds for that part. Store a different sound for each part. When a part is selected in the **UPPER ORCHESTRAL CONDUCTOR**, the sound you set for that part is selected for the upper keyboard. **MEMORY** buttons are for storing unique sounds you create yourself with the **SOUND EDIT**feature. The volume of each part is adjusted with the respective buttons below the display.

⑤ LOWER SOUND GROUP
Sounds are selected for the lower keyboard parts in the same way as for the **UPPER SOUND GROUP** parts. The lower keyboard sounds are used mostly for accompaniment.

⑥ TRANSPOSE
C is the standard setting, but you can raise or lower the key of the entire organ with the two buttons. The transposed key is shown on the normal mode display.

⑦ Effects
The **DIGITAL EFFECT** and **SUSTAIN** effects are turned on and off for the selected upper and lower keyboard sounds.

⑧ BASS PEDALS
These are the sounds for the pedal keyboard. **MEMORY** button is for storing unique sounds you create yourself with the **SOUND EDIT** feature. The **BASS** sound volume is adjusted with the respective buttons in the separate **BALANCE** section.

⑨ RHYTHM GROUP
Select one of the various preset rhythms and start it instantly with the **START/STOP** button. Other features which enhance the **RHYTHM** unit are **SYNCHRO & BREAK, INTRO & ENDING, FILL IN** and a foot switch. The volume is adjusted with the **DRUMS** buttons in the **BALANCE** section.

⑩ AUTO PLAY CHORD
Add an automatic accompaniment to your selected rhythm. A full chord and a bass note are automatically produced when you play a key on the lower keyboard. Play major, minor, seventh or minor seven chords and the bass note just by pressing one key. The volume for each part of the **AUTO PLAY CHORD (ACCOMP, BASS, DRUMS)** is adjusted with the respective buttons in the separate **BALANCE** section.

⑪ KEYBOARD PERCUSSION
One press of the **KEYBOARD PERCUSSION** button transforms your lower keyboard into a whole band of percussive instruments and special sounds. The keys are picture-coded for quick and easy selection.

⑫ Display
In the normal mode, the display indicates the selected sounds, volumes, rhythm, tempo, and all other information about the panel settings. The display is also used for setting the various functions. The amazing number and range of settable functions makes the EA series organ truly an instrument which you can fashion to fit exactly your particular playing style and tastes. And finally, the display is your key to programming when using the **SOUND EDIT**, **COMPOSER** and **SEQUENCER** features of your organ. The **CONTRAST** is adjusted with the sliding control.

⑬ Balance
The volumes for the upper and lower keyboard parts are controlled with the corresponding buttons below the display. The **BASS** volume is adjusted with the **BASS** buttons in the separate **BALANCE** section.

⑭ ORCHESTRAL CONDUCTOR
These buttons allow you to select groups of sounds, or parts, and their effects instantly. The upper and lower keyboard parts are selected respectively with the **UPPER** and **LOWER ORCHESTRAL CONDUCTOR**.

⑮ TECHNI-CHORD
Chord notes played on the lower keyboard are added to melody notes played on the upper keyboard. Choose from four harmonic styles.

⑯ EASY PLAY STYLE
A simple operation provides automatic selection of the sounds, effect and various other panel settings which are suitable for the registration you chose.

⑰ SOUND EDIT functions
With this feature you select a preset sound, modify it until it sounds just the way you like it, and then store it in one of the memory locations. Edit and store many sounds for each of the **UPPER** and **LOWER SOUND GROUP** sections and **BASS** sounds.

⑱ SOUND functions
Turning on this button readies the display for use as a controller to preset sounds, effects, volume, and mode setting for each part.

⑲ MEMORY & CONTROL functions
The settable functions in this mode include memory initialization, **PANEL MEMORY** range, foot switch assign, and more.

⑳ COMPOSER
Create original rhythm patterns, either in real-time or with the step method, or modify preset rhythms. Store up to 12 new rhythms in the reserved memory locations for instant recall as you play.

㉑ SEQUENCER
With this feature you can separately play and store the parts for an entire tune. Then have the hole ensemble performance played back automatically. This is a true 16-track sequencer, with full real-time recording, step recording and editing features.

㉒ PANEL MEMORY
Set up the sounds and effects for the upper, lower and pedal keyboards, and then store them in these 5 buttons for instant recall as you play. You can expand the range of the storable settings to include rhythm selection, tempo setting and more.

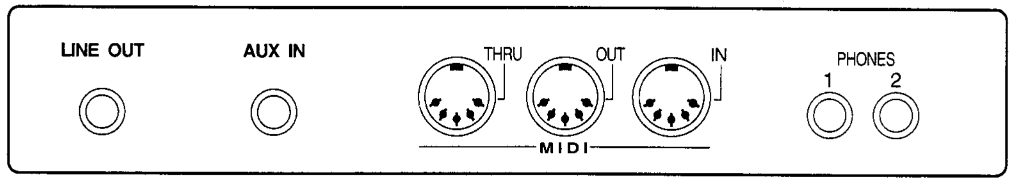
㉓ Glide control
Lower the pitch of the organ by one half-tone or whole tone by pressing the left foot switch. This is used, for example, to get the Hawaiian guitar effect.

㉔ Expression pedal
Increase and decrease the loudness of all the organ sound as you play to add expression to the music.

㉕ Disk Drive
The Disk Drive allows you to store up to 20 performances on a 3.5-in. 2HD, 2DD memory disk.

TERMINALS

(Beneath the right side of the lower keyboard)



LINE OUT (output level 1.0 Vrms, 600 Ω)
By connecting an external high-power amplifier, the sound can be reproduced at a high volume.

MIDI (Musical Instrument Digital Interface)
MIDI is the standard specification that enables connection to equipment such as synthesizers and personal computers.

IN : The terminal that receives data from external equipment.
OUT : The terminal that transmits data from this instrument to external equipment.
THRU: The terminal that transfers data from the **IN** terminal directly to other equipment.

- Use a 5-pin DIN cord (less than 15 m long) for these connections.

PHONES 1, 2
For silent practice, headphones may be used. When plugged in, this instrument's speaker system is automatically switched off, and the sound is heard only through the headphones.

AUX IN (input level 500 mV, 33 kΩ)
Other instruments such as a keyboard can be connected to the organ so that the signal is output from the organ. This terminal runs through the expression pedal circuit and you can control the volume of the connected instrument with the expression pedal.

INITIAL SETTING

The initial setting function is used to return to the original factory settings, and to reset the customer settings and misoperations.

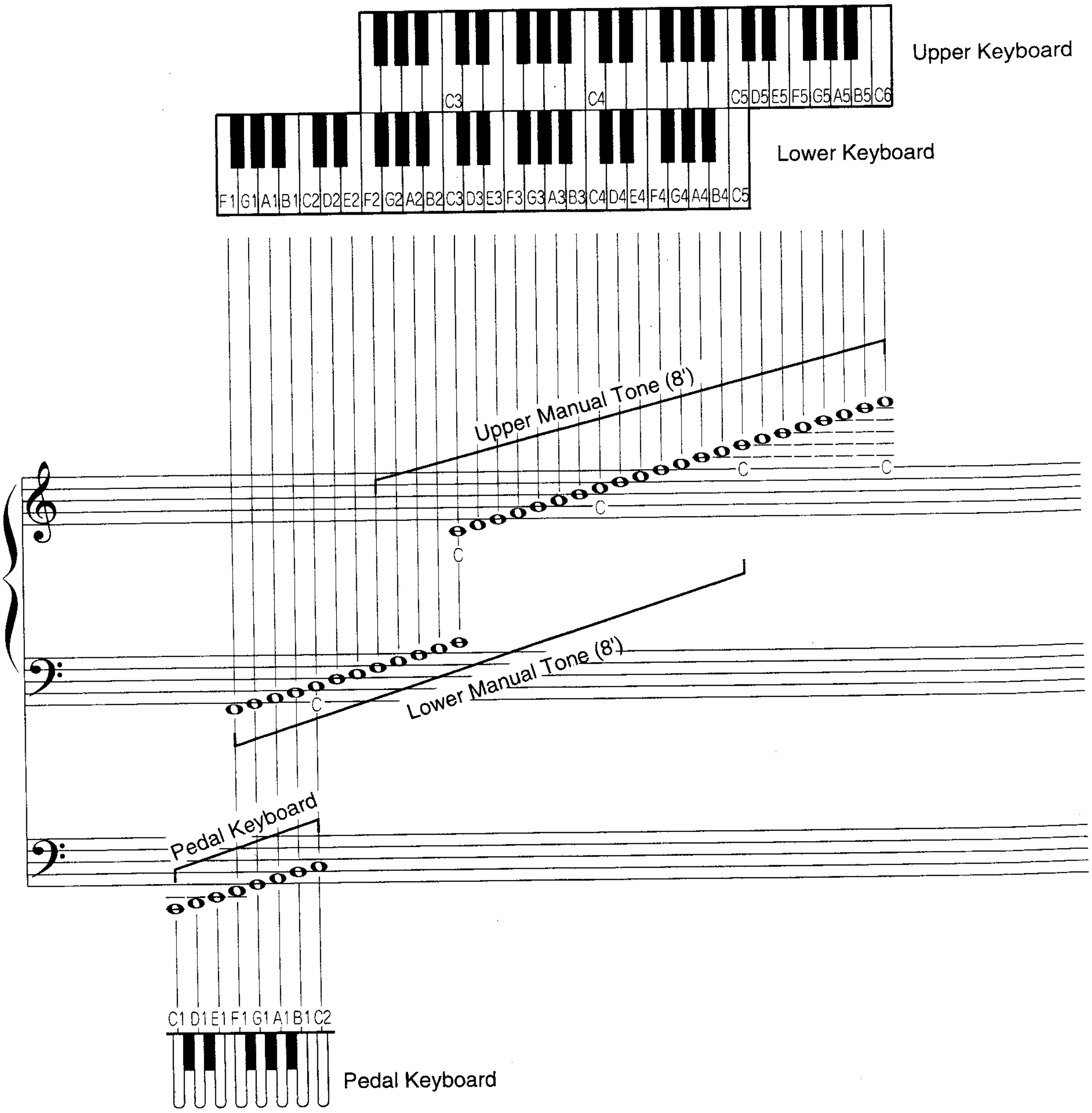
1. Press the **POWER** button to turn off the instrument.
2. While pressing the three lower left buttons in the **RHYTHM GROUP** section at the same time, turn the **POWER** button on again.

NOTE:
All stored data in the **SEQUENCER** and **COMPOSER** and other settings are initialized with this operation.

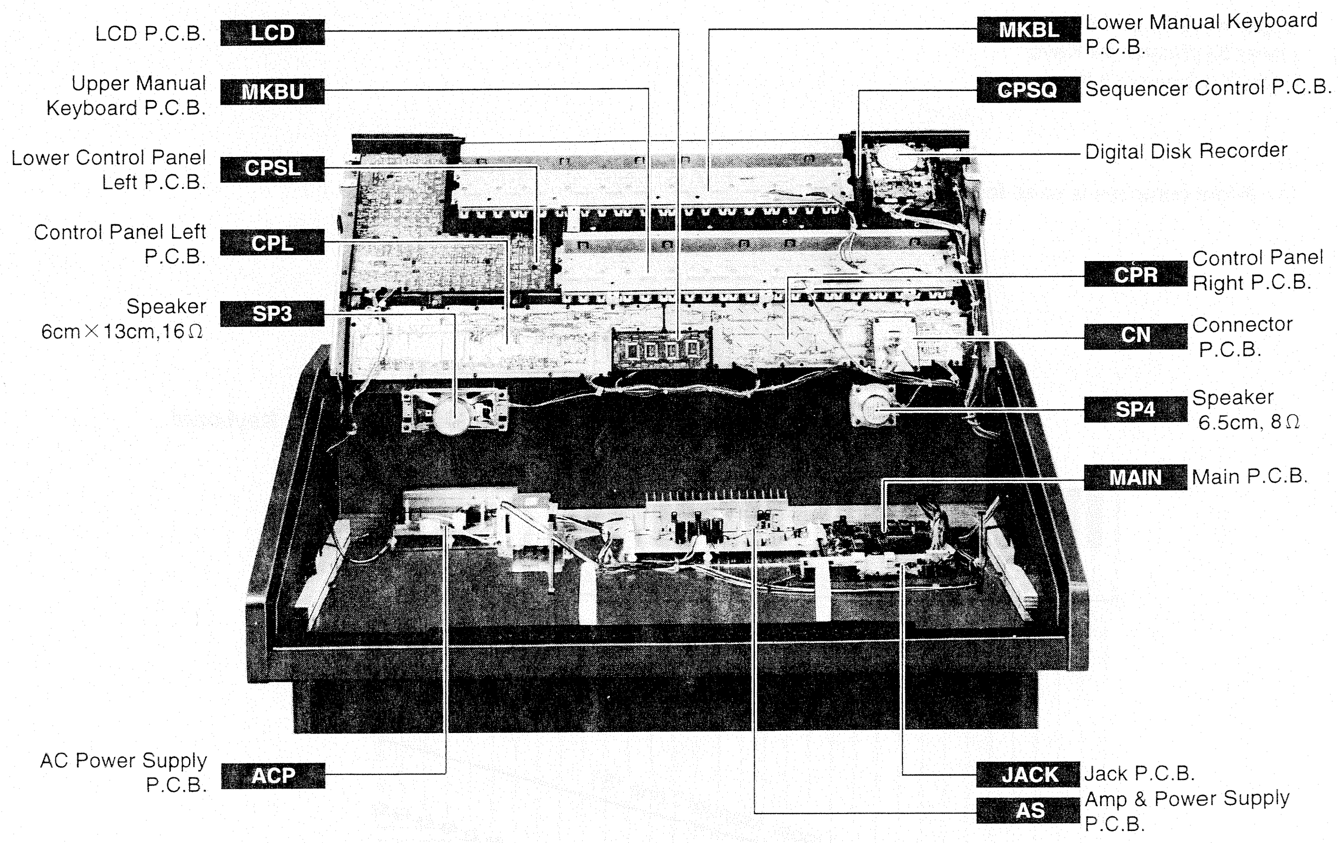
KEYBOARD RANGES

Upper Keyboard: 44 Keys
Lower Keyboard: 44 Keys
Pedal Keyboard:13 Keys

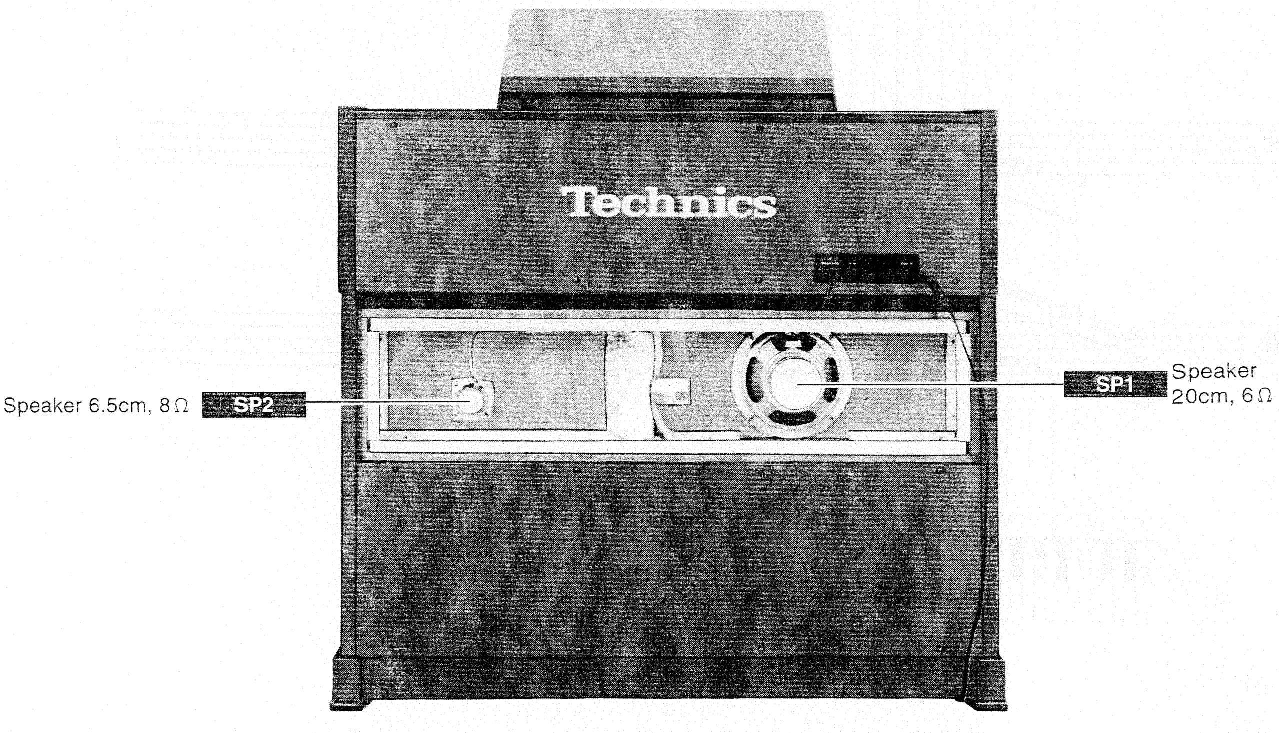
*An 8-foot compass is used for each keyboard


Upper Keyboard
C3
C4
C5 D5 E5 F5 G5 A5 B5 C6
Lower Keyboard
F1 G1 A1 B1 C2 D2 E2 F2 G2 A2 B2 C3 D3 E3 F3 G3 A3 B3 C4 D4 E4 F4 G4 A4 B4 C5
Upper Manual Tone (8')
C
C
C
C
Lower Manual Tone (8')
C
Pedal Keyboard
C1 D1 E1 F1 G1 A1 B1 C2
Pedal Keyboard

PARTS LOCATION


LCD P.C.B.
LCD
Upper Manual Keyboard P.C.B.
MKBU
Lower Control Panel Left P.C.B.
CPSL
Control Panel Left P.C.B.
CPL
Speaker 6cm×13cm,16Ω
SP3
AC Power Supply P.C.B.
ACP
MKBL
Lower Manual Keyboard P.C.B.
CPSQ
Sequencer Control P.C.B.
Digital Disk Recorder
CPR
Control Panel Right P.C.B.
CN
Connector P.C.B.
SP4
Speaker 6.5cm, 8Ω
MAIN
Main P.C.B.
JACK
Jack P.C.B.
AS
Amp & Power Supply P.C.B.

[Photo-1]

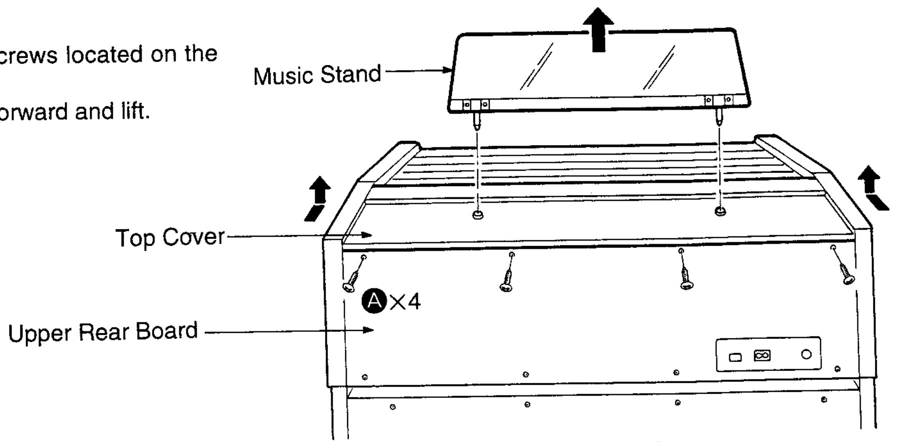

Technics
Speaker 6.5cm, 8Ω
SP2
SP1
Speaker 20cm, 6Ω

[Photo-2]

DISASSEMBLY INSTRUCTIONS

1 Removing the top cover

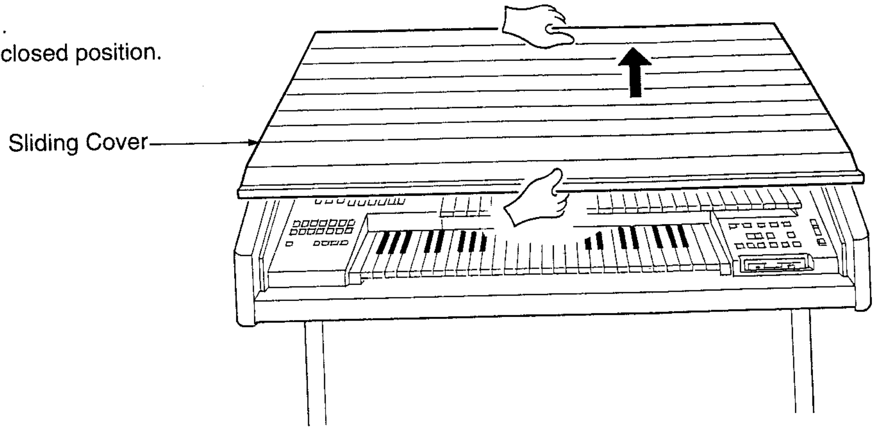
1. Remove the music stand.
2. Remove the top cover holding screws located on the upper rear board (Ⓐ 4 pcs.).
3. Remove the top cover, sliding it forward and lift.


Music Stand
Top Cover
Ⓐ×4
Upper Rear Board

[Fig.5]

2 Removing the sliding cover

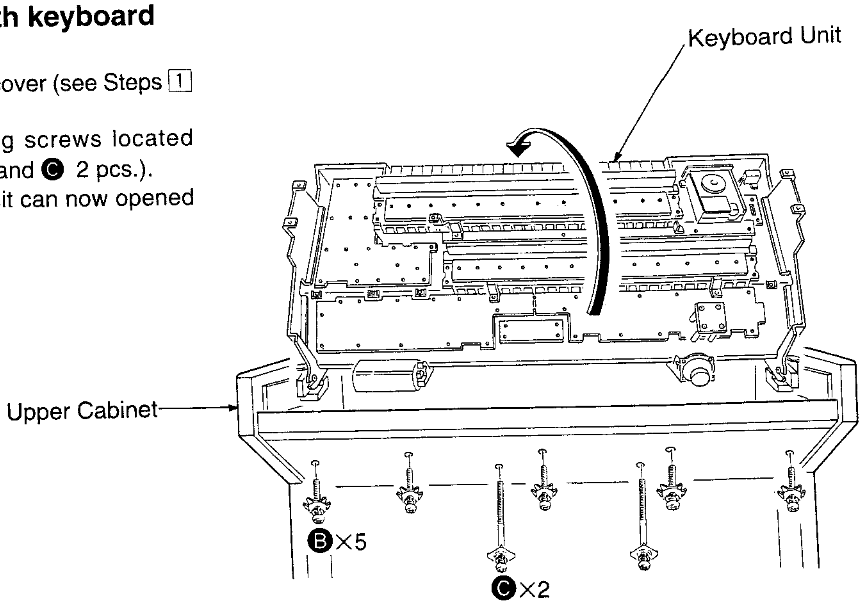
1. Remove the top cover (see Step 1).
2. Remove the sliding cover in its fully closed position.


Sliding Cover

[Fig.6]

3 Opening the control panel with keyboard unit

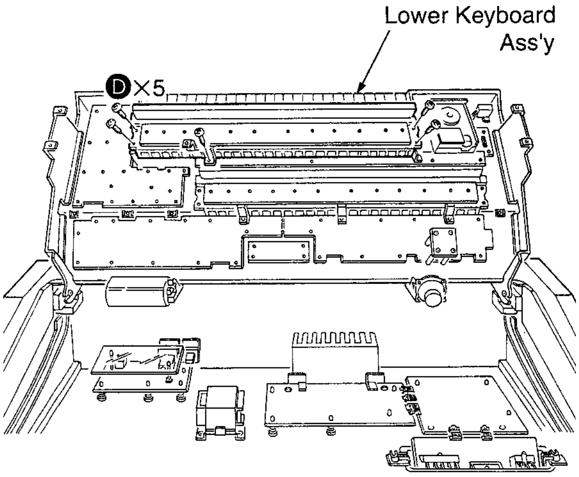
1. Remove both top cover and sliding cover (see Steps 1 and 2).
2. Remove the control panel holding screws located under the upper cabinet (Ⓑ 5 pcs. and Ⓒ 2 pcs.).
3. The control panel with keyboard unit can now opened upwards.


Keyboard Unit
Upper Cabinet
Ⓑ×5
Ⓒ×2

[Fig.7]

4 Removing the lower keyboard ass'y

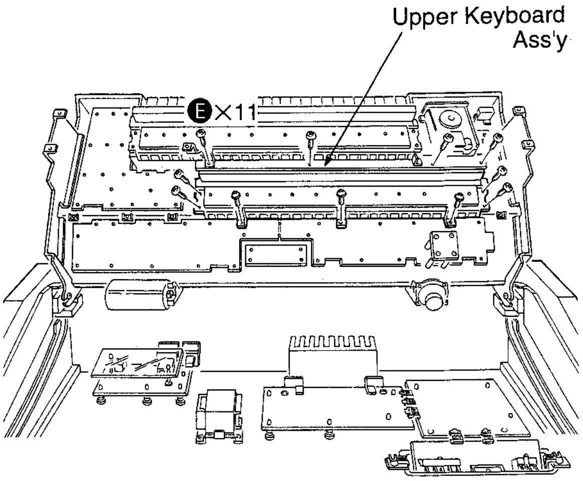
1. Open the control panel with keyboard unit (see Step 3).
2. Remove the lower keyboard ass'y holding screws (Ⓓ 5 pcs.).
3. The lower keyboard ass'y can be removed.



[Fig.8]

5 Removing the upper keyboard ass'y

1. Open the control panel with keyboard unit (see Step 3).
2. Remove the upper keyboard ass'y holding screws (Ⓔ11 pcs.).
3. The upper keyboard ass'y can be removed.

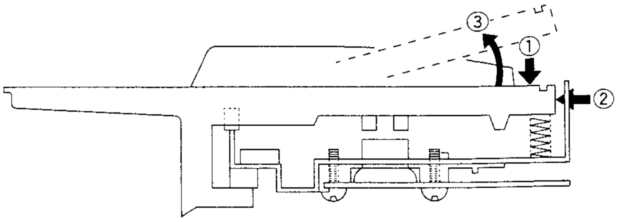


[Fig.9]

6 Removing the keys (s)

1. Remove the keyboard ass'y (see Steps 4 or 5).
2. Press downward on the rear of the key (Fig.10-①).
3. While pressing downward on the rear of the key, push the key forward and release it from the chassis (Fig.10-②.).
4. Lift the key and remove it from the cahssis (Fig.10-③.).

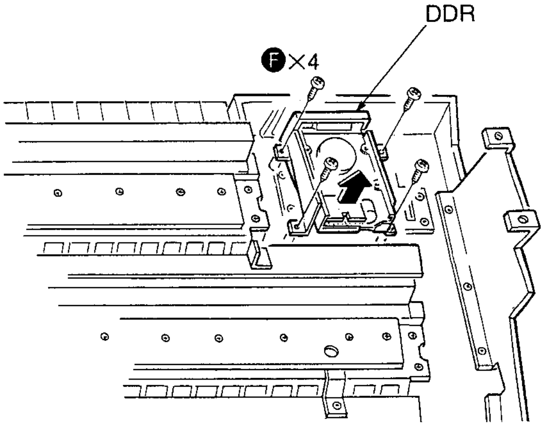
NOTE:
To remove a black key, the white key to either side of it should be removed first.



[Fig.10]

7 Removing the digital disk recorder (DDR)

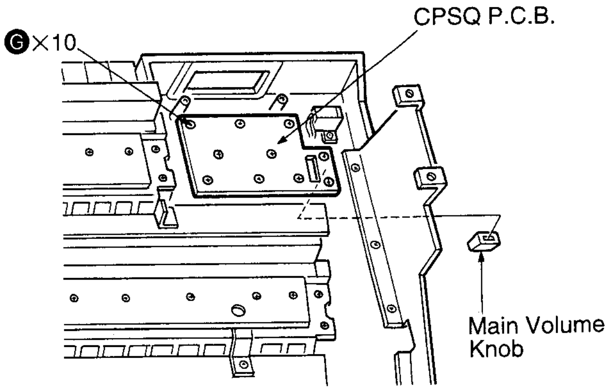
1. Open the control panel with keyboard unit (see Step 3).
2. Remove the DDR holding screws (Ⓕ 4 pcs.).



[Fig.11]

$\boxed{8}$ Removing the CPSQ P.C.B.

1. Open the control panel with keyboard unit (see Step $\boxed{3}$).
2. Remove the main volume knob.
3. Remove the DDR (see Step $\boxed{7}$).
4. Remove the CPSQ P.C.B. mounting screws (🅖 10 pcs.).



[Fig.12]

$\boxed{9}$ Removing the CPSL, CPL, CN, CPR and LCD P.C.B.

- Open the control panel with keyboard unit (see Step $\boxed{3}$).

CPSL P.C.B.

- Remove the CPSL P.C.B. mounting screws (🅗 20 pcs.).

CPL P.C.B.

- Remove the CPL P.C.B. mounting screws (🅘 15 pcs.).

CN P.C.B.

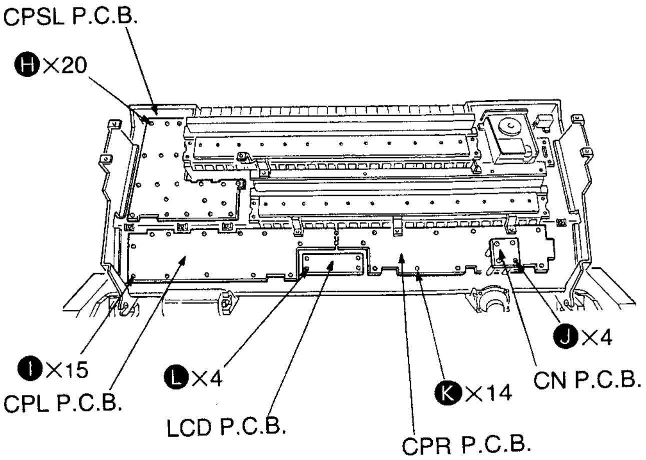
- Remove the CN P.C.B. mounting screws (🅙 4 pcs.).

CPR P.C.B.

1. Remove the CN P.C.B.
2. Remove the CPR P.C.B. mounting screws (🅚 14 pcs.).

LCD P.C.B.

- Remove the LCD P.C.B. mounting screws (🅛 4 pcs.).



[Fig.13]

$\boxed{10}$ Removing the ACP, AS, MAIN and JACK P.C.B.

- Open the control panel with keyboard unit (see Step $\boxed{3}$).

ACP P.C.B.

1. Remove the ACP P.C.B. mounting screws (🅜 2 pcs.).
2. Release the claws of the P.C.B. holder.

AS P.C.B.

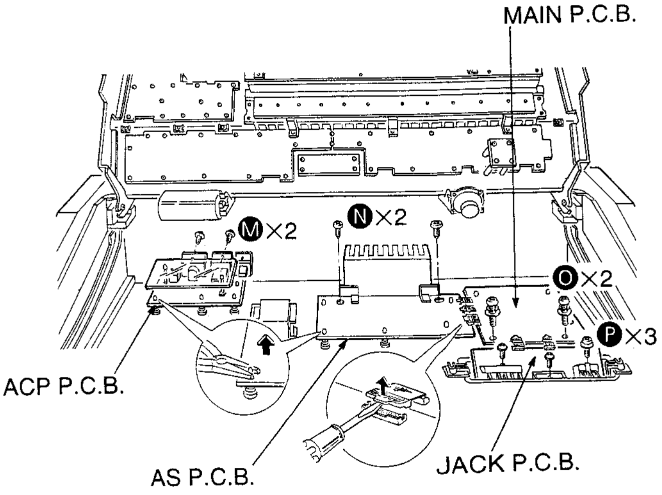
1. Remove the AS P.C.B. mounting screws (🅝 2 pcs.).
2. Release the claws of the P.C.B. holder.

MAIN P.C.B.

1. Remove the MAIN P.C.B. mounting screws (🅞 2 pcs.).
2. Release the claws of the P.C.B. holder.

JACK P.C.B.

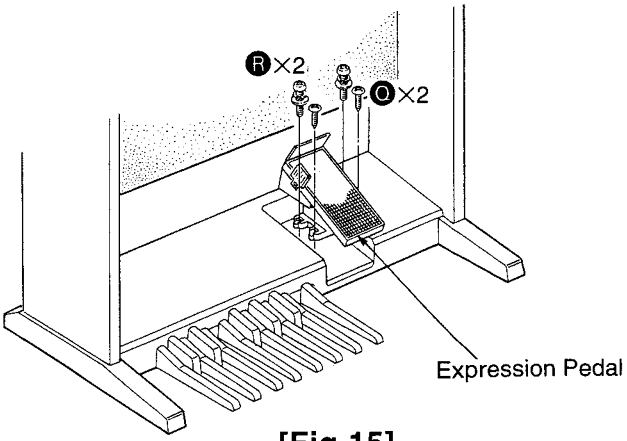
- Remove the JACK P.C.B. mounting screws (🅟 3 pcs.).



[Fig.14]

11 Removing the expression pedal

- Remove the expression pedal mounting screws (Ⓠ 2 pcs. and Ⓡ 2pcs.).


Ⓡ×2
Ⓠ×2
Expression Pedal

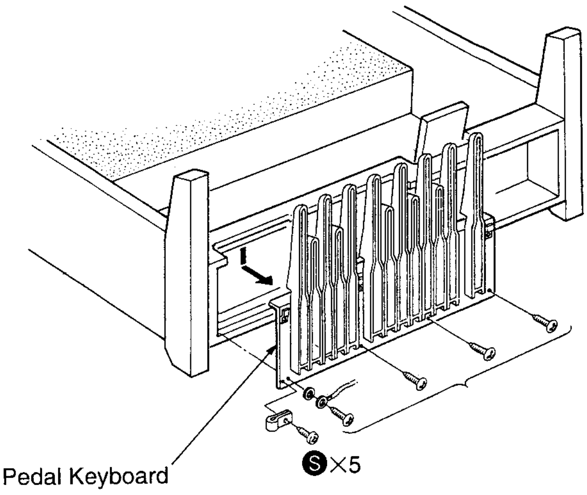
[Fig.15]

12 Removing the pedal keyboard

1. Gently turn over the instrument so that the rear of the organ is facing down.
2. Remove the pedal keyboard mounting screws (Ⓢ 5 pcs.).

Caution

- Take care not to scratch the organ when turning it over.


Pedal Keyboard
Ⓢ×5

[Fig.16]

13 Removing the speakers

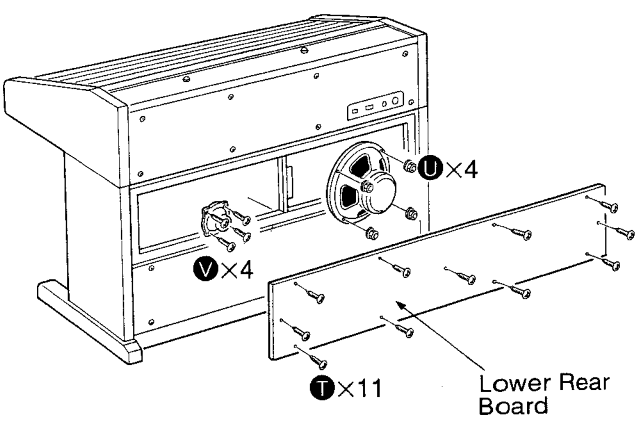
- Remove the lower rear board mounting screws (Ⓣ 11 pcs.).

20 cm speaker

- Remove the 20 cm speaker mounting nuts (Ⓤ 4 pcs.).

6.5 cm speaker

- Remove the 6.5 cm speaker mounting screws (Ⓥ 4 pcs.).


Ⓤ×4
Ⓥ×4
Ⓣ×11
Lower Rear Board

[Fig.17]

ERROR DISPLAY

The following messages on the display indicate that a mistake has been made in using the functions.

No.	Contents
00	The data on the disk that you are using is for a different product. The format of the disk is not correct.
01	An error has occurred while the disk was loading. Please try again!
02	There is no disk in the Disk Drive.
03	The file that you tried to load is empty.
05	An error has occurred while the disk was saving. Please try again!
06	The disk that you are using is write protected. Please remove the write protection and try again.
07	The disk that you are using is full. Please use another disk.
08	An error has occurred while the disk was formatting. The disk that you are using may be faulty. Please try formatting another disk.
10	The data is already copy protected.
20	A problem has occurred with your **SEQUENCER** Data. This might be due to a damaged or faulty disk.
21	Memory full
22	It is necessary to press PUNCH OUT to complete this procedure.
23	It is impossible to change the time signature because it has already been set in the existing tracks.
24	A rhythm track already exists. It is impossible to assign two tracks to rhythm.
25	It is only possible to change the velocity on a melody track.

No.	Contents
26	It is only possible to merge melody tracks. Tracks such as rhythm, chord and control cannot be merged.
27	It is only possible to copy melody tracks. Tracks such as rhythm, chord and control cannot be copied.
28	This song is too long to be saved as a MIDI file.
29	The MIDI file that you have tried to load exceeds the memory capacity of this organ and cannot be played. The **SEQUENCER** memory has been cleared.
30	It is not possible to change the time signature or measure length of a **COMPOSER** pattern after it has been recorded. If you want to proceed, you must first clear the entire **COMPOSER** pattern.
31	The time signature of the pattern from which you are copying is different from the **COMPOSER** memory that you are using. Either: Change the time signature of the **COMPOSER** memory or: Copy from a pattern that has the same time signature.
32	Memory full
43	The file that you are trying to load was saved on a previous Technics Organ. It is only possible to load using the "ALL" option.
44	It is impossible to edit a Drum Kit or an ORGAN/CLASSICAL ORGAN bass sound. Select a different sound.
46	Data insert is possible only with melody tracks. RHYTHM, CHORD and CONTROL tracks cannot be used with data insert.

SYMPTOMS WHICH APPEAR TO BE SIGNS OF TROUBLE

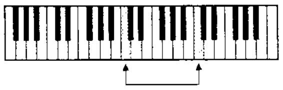
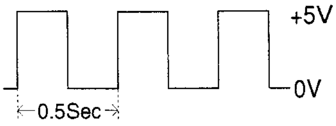
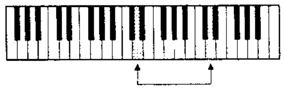
The following changes in performance may occur in Technics organ but do not indicate trouble.

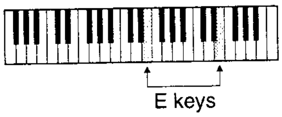
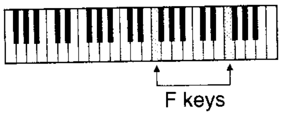
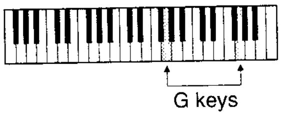
Phenomenon		Remedy
Sounds and effects	The buttons, keys, etc. malfunction.	• Turn off the **POWER** button once, then turn it on again. If this procedure is not successful, turn off the **POWER** button once. Then, while pressing the three lower left buttons in the **RHYTHM GROUP** section (**ROCK/DISCO**, **MODERN ROCK** and **ROCK** [**OTHERS**]) at the same time, turn the **POWER** button on again. (Note that, in this case, all programmable settings, functions and memories return to their factory-preset status.)
	No sound is produced when the keys are pressed.	• The **MAIN VOLUME** is at the minimum setting. Adjust the volume with the **MAIN VOLUME** control. • The volumes for the selected parts are set to the minimum levels. Use the balance buttons to set the volumes of the relevant parts to appropriate levels. • The local control for a part performed on the keyboard is set to OFF. Set the LOCAL CONTROL to ON.
	The volume is very low when the keyboard is played.	• The speaker cord is not connected to the terminal on the rear panel. Connect the speaker cord so that the plug is fully inserted into the terminal. • The volume setting in the **SEQUENCER** contents is very low. Follow the **INITIAL** procedure to reset the settings.
	Some sounds cannot be selected.	• When the GENERAL MIDI mode is set to ON, the sounds which can be selected and operations which can be exectuted are limited. Set the GENERAL MIDI mode to OFF to return the instrument to its normal operation.
	The pedal keyboard sound is not produced. The expression pedal does not work.	• The pedal cord is not connected to the terminal on the rear panel. Connect the pedal cord so that the plug is fully inserted into the terminal.
	Only percussive instrument sounds are produced when the lower keyboard is played.	• The **KEYBOARD PERCUSSION** button is on.
	The foot switch does not operate properly.	• Any functional on and off operation other than the factory presets are storable in this switch. Store your favorite functions to turn them on and off.
	The sound of the lower keyboard does not stop.	• The MEMORY button of the **AUTO PLAY CHORD** is on. Turn off the MEMORY button.
Rhythm	The rhythm does not start.	• The **DRUMS** volume is set to the minimum level. Use the balance buttons to set the **DRUMS** volume to an appropriate level. • In the **RHYTHM GROUP** section, a rhythm in **COMPOSER A** or **COMPOSER B** with no stored pattern was selected. Select a different rhythm. • A **SEQUENCER** track button is on. When you are not playing back the **SEQUENCER** performance, turn off the track buttons. • CLOCK is set to MIDI. Set CLOCK to INTERNAL. • The rhythm does not work when the GENERAL MIDI mode is set to ON. Set the GENERAL MIDI mode to OFF.

Phenomenon		Remedy
AUTO PLAY CHORD	No sound is produced for the automatic accompaniment.	• In the **RHYTHM GROUP** section, a rhythm in **COMPOSER A** or **COMPOSER B** with no stored pattern was selected. Select a different rhythm.
	No sound is produced for the automatic accompaniment, or only the sounds of some parts are produced.	• Some or all of the **ACCOMP 1**., **2** and **3** buttons are turned off. Press the buttons to turn them on. • The **ACCOMP** volume (in the **BALANCE** section) is set to the minimum. Adjust the volume to a suitable level.
SEQUENCER	Storage is not possible.	• The remaining memory capacity of the **SEQUENCER** is 0. Follow the SONG CLEAR or TRACK CLEAR procedure to erase the memory.
	Multi-track storage is not possible.	• The playback track has been selected, but the **START/STOP** button has not been pressed. A flashing track indicator shows the track which is ready for recording, and a lit track indicator shows a track which is ready for playback. To record one track while listening to another (playback) track, press the **START/STOP** button to begin playback.
	The playback measure indication is different from when the performance was recorded.	• The number of measures corresponds to the time signature of the rhythm selected at the start of recording. To change the rhythm in the middle of the song, record the rhythm change in the RHYTHM part.
COMPOSER	Storage is not possible.	• The remaining memory capacity of the **COMPOSER** is 0.
	Setting the time signature and number of measures is not possible.	• The time signature and number of measures cannot be changed for a pattern which is currently recorded in the **COMPOSER**. If you wish to change the time signature and/or measure data, first follow the procedure to clear the memory.
	The playback timing of the rhythm pattern is different from the timing with which it was recorded.	• The QUANTIZE function was on when the pattern was recorded and the timing was automatically corrected. Set the quantize level to a smaller note unit or to OFF when recording.
Disk Drive	The Disk Drive produces a noise during recording or playback.	• This occurs when the Disk Drive is reading a disk. It does not indicate a problem.
	When the procedure to load from a disk is performed, the contents of the keyboard memory are erased.	• When performing the load operation from a disk, the keyboard memory changes to that of the data loaded from the disk. If you wish to preserve a song which is stored in the keyboard memory, save it on a disk before performing the load procedure.
Other	Noise from a radio or TV can be heard.	• This sometimes occurs when electrical equipment such as a radio or TV is used near the instrument. Try moving such electrical equipment further away from the instrument. • The sound may be coming from a nearby broadcast station or amateur radio station. If the sound is bothersome, consult your dealer or service center.
	The cabinet becomes warm during use.	• This instrument has a built-in power source that heats the cabinet to some degree. This is not an indication of trouble.

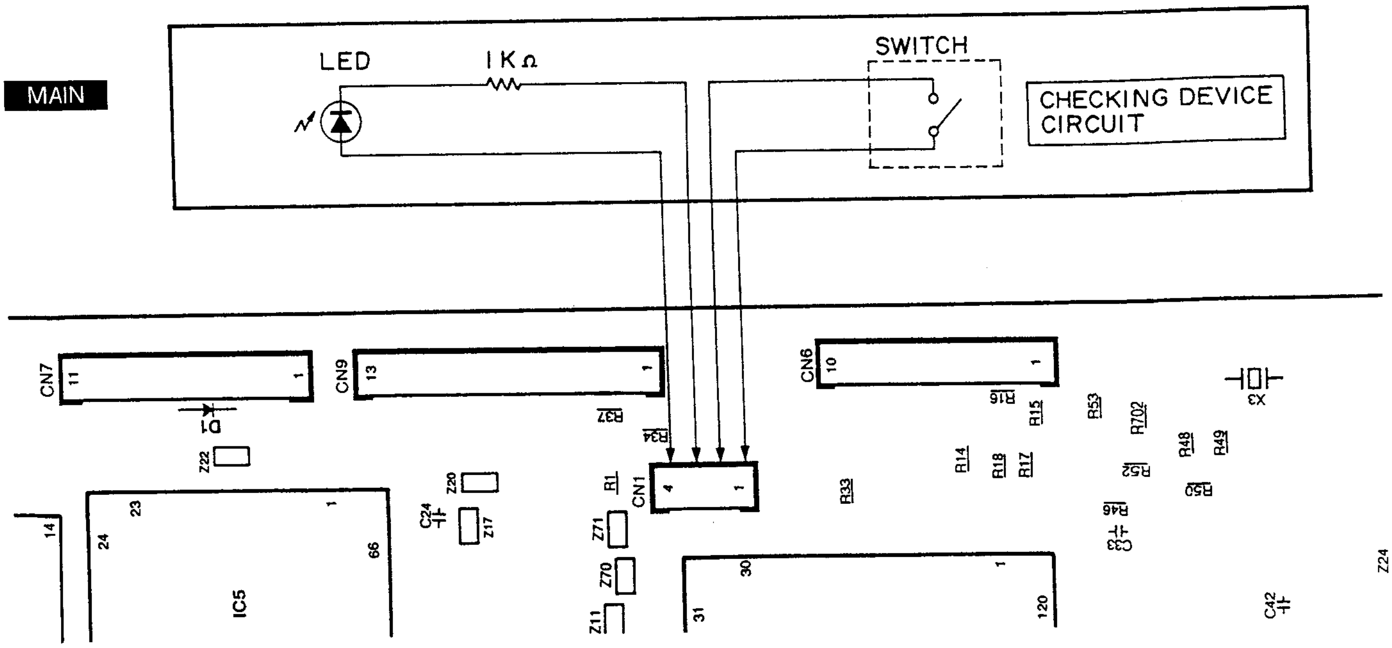
ABOUT THE SELF-DIAGNOSTIC FUNCTION

This model has some self-diagnostic capabilities. When set to the self-diagnostic mode, operation of various components can be verified by following the procedures in the chart below.

<table>
<tr><th>No.</th><th>PCB</th><th>TEST MODE</th><th>Procedure</th></tr>
<tr><td>1</td><td>MAIN</td><td>RAM (IC20, 22), ROM (IC15, 16, 18) check</td><td>1. Connect the CHECKING DEVICE (refer to page I-18) to CN 1 on the MAIN P.C.B., and turn on the CHECKING DEVICE switch.
2. Turn on the power switch.</td></tr>
<tr><td></td><td></td><td colspan="2">When the power switch is turned on, the LED of the CHECKING DEVICE flashes 8 times. The first 4 flashes are for the RAM check, and the latter 4 flashes are for the ROM check. The order of the LED flashes corresponds to the respective IC numbers as shown below. If an IC is defective, the corresponding flash time is longer.
Examples
RAM: 1 2 3 4 — ROM: 1 2 3 4
1. RAM OK, ROM OK → ● ● ● ● ● ● ● ▬
2. RAM OK, ROM (IC15) defective → ● ● ● ● ▬ ● ● ▬
3. RAM (IC22) defective, ROM OK → ▬ ● ● ● ● ● ● ▬
↑ IC22 ↑ IC20 ↑ IC15 ↑ IC18 ↑ IC16
NOTE : ● indicates short flash time = OK
▬ indicates long flash time = Defective</td></tr>
<tr><td>2</td><td>MAIN</td><td>V53 Gate Array (IC2) check</td><td>Press and hold the two C keys shown below, and then turn on the power switch.
Lower Keyboard 
C kesy</td></tr>
<tr><td></td><td></td><td colspan="2">Monitor pins (refer to page I-18) on oscilloscope, and check whether data (see figure) is output.
 </td></tr>
<tr><td>3</td><td>CPL
CPR
CPSL</td><td>Control panel CPU check</td><td>1. Connect the CHECKING DEVICE to CN 1 on the MAIN P.C.B. (The Checking Device switch should be off).
2. On the control panel, set all the sliding BALANCE controls to OFF.
3. Press and hold the two D keys shown below, and then turn on the power switch.
Lower Keyboard 
D keys</td></tr>
<tr><td></td><td></td><td colspan="2">When the power switch is turned on, the LED of the CHECKING DEVICE flashes 4 times. The order of the LED flashes corresponds to the CPU (IC) on the respective P.C.B.s as shown below. If an IC is defective, the corresponding flash time is longer.
1 2 3 4
1. OK → ● ▬ ● ●
2. CPL CPU defective → ● ▬ ● ▬
3. CPR CPU defective → ● ▬ ▬ ●
↑ CPSL ↑ CPR ↑ CPL
NOTE : ● indicates short flash time = OK
▬ indicates long flash time = Defective</td></tr>
</table>

<table>
<tr><th>No.</th><th>PCB</th><th>TEST MODE</th><th>Procedure</th></tr>
<tr><td rowspan="2">4</td><td rowspan="2">MAIN</td><td>Wave ROM check
MAIN : IC23, 24</td><td>Press and hold the two E keys shown below, and then turn on the power switch.
Lower Keyboard  </td></tr>
<tr><td>When set to the self-diagnostic mode, the Wave ROM outputs a sine wave. The Wave ROMs correspond to the keyboard keys as shown in the diagram to the right. When a key is pressed, the corresponding sine wave sound is produced. If no sound is produced, or if the sound is distorted, the Wave ROM corresponding to that key is defective.</td><td>• The key number indicates the Wave ROM number. (1:IC23, 2:IC24)
<table>
<tr><th>KEY
UPPER CONDUCTOR</th><th>C</th><th>C#</th><th>D</th><th>D#</th><th>E</th><th>F</th><th>F#</th><th>G</th><th>A</th><th>A#</th><th>B</th></tr>
<tr><td>Upper Organ</td><td>1</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td></tr>
</table></td></tr>
<tr><td rowspan="2">5</td><td rowspan="2">CPL
CPR
CPSQ</td><td>LED & SW check</td><td>Press and hold the two F keys shown below, and then turn on the power switch.
Lower Keyboard  </td></tr>
<tr><td colspan="2">All the LEDs turn off after lighting once. Confirm that all the LEDs light.</td></tr>
<tr><td rowspan="2">6</td><td rowspan="2">LCD</td><td>LCD Display check</td><td>Press and hold the two G keys shown below, and then turn on the power switch.
Lower Keyboard  </td></tr>
<tr><td colspan="2">All dots of the LCD screen light for 10 seconds, after which different displays appear in succession.</td></tr>
</table>

■ Connection between serving CHECKING DEVICE and MAIN P.C.B.


MAIN
LED
1KΩ
SWITCH
CHECKING DEVICE CIRCUIT
CN7
11
1
CN9
13
1
CN6
10
1
CN1
4
1
D1
Z22
Z20
Z17
C24
R1
R34
R37
Z71
Z70
Z11
IC5
14
24
23
1
66
30
1
31
120
R33
R14
R18
R17
R16
R15
R53
R702
R52
R48
R49
R50
R46
C43
X3
C42
Z24

MIDI IMPLEMENTATION CHART

Organ [SX-EA3] **(Transmitted)**

Function		U.SND1,2,SOLO (EA5) L.SND2,SOLO (EA5) PARTS	BASS (PEDAL)	L. SND1	K.B PERC (PART16)	U. ORGAN	L. ORGAN	ACMP1, ACMP2, ACMP3, BASS	DRUMS	CHORD	CONTROL	Remarks
Basic Channel	Default	1-16	1-16	1-16	1-16	1-16	1-16	1-16	1-16	1-16	1-16	memorized
	Changed	1-16	1-16	1-16	1-16	1-16	1-16	1-16	1-16	1-16	1-16	
Mode	Default	3	3	3	3	3	3	3	3	3	3	OMNI OFF,POLY MODE
	Messages	×	×	×	×	×	×	×	×	×	×	
	Altered	–	–	–	–	–	–	–	–	–	–	
Note Number		0-119	0-119	0-119	0-119	0-119	0-119	0-119	0-119	0-119	–	Changes depending on the position of the transpose control,octave shift,and drums type.
	True voice	–	–	–	–	–	–	–	–	–	–	
Velocity	Note ON	○	○	○	○	○	○	○	○	○	–	
	Note OFF	×	×	×	×	×	×	×	×	×	–	
After Touch	Key's	×	×	×	×	×	×	×	×	×	–	
	Ch's	○*	○*	○*	×	×	×	×	×	×	–	
Pitch Bender		○*	○*	○*	×	×	×	○*	×	×	×	
Control Change	0,32	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	bank select MSB, LSB
	1	○*	○*	○*	×	×	×	○*	×	○×*	×	modulation
	6,38	○×*	○×*	○×*	×	×	×	×	×	×	×	data entry MSB, LSB
	7	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	×	volume
	10	○×*	○×*	○×*	×	×	×	×	×	×	×	panpot (EA5)
	11	○×*	○×*	○×*	○×*	○×*	○×*	×	×	×	○×*	expression
	64	○×*	○×*	○×*	×	○×*	○×*	○×*	×	×	×	sustain
	80	×	×	○×*	×	×	×	×	×	×	×	auto play chord
	82	×	×	×	×	×	×	×	○×*	×	×	intro, fill in, ending
	91	○×*	○×*	○×*	○×*	×	×	×	×	○×*	○×*	reverb
	92	×	×	×	×	○×*	○×*	×	×	×	×	tremolo
	93	○×*	○×*	○×*	×	×	×	○×*	×	○×*	×	digital effect
	94	×	×	×	×	○×*	○×*	×	×	×	×	Celeste
	100,101	○×*	○×*	○×*	×	×	×	×	×	×	×	RPN LSB, MSB
	120	○	○	○	○	○	○	×	×	×	×	all sound off
	121	○×*	○×*	○×*	○×*	○×*	○×*	×	×	×	×	reset all controllers
Prog Change		○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○*	Changes depending on program change mode and prog.cng to p.mem.
	True #	–	–	–	–	–	–	–	–	–	–	
System exclusive		○										
System common	Song Pos	○×*										
	Song Sel	○×* (0-19)										
	Tune	×										
System Real Time	Clock	○										
	Commands	○×*										start/stop,continue
Aux Messages	Local ON/ OFF	×	×	×	×	×	×	×	×	×	–	
	All notes OFF	×	×	×	×	×	×	×	×	×	–	
	Active Sense	○										
	Reset	×										
Notes		○×*············Whether or not the data for each of these items is transmitted can be set. ○*··············Transmitted during SEQUENCER playback and during rhythm performance.										

Mode 1: OMNI ON, POLY Mode 2: OMNI ON, MONO ○:Yes
Mode 3: OMNI OFF, POLY Mode 4: OMNI OFF, MONO ×:No

Organ [SX-EA3]

(Recognized)

Function		U.SND1,2,SOLO (EA5) L.SND2,SOLO (EA5) PARTS	BASS (PEDALS)	L. SND1	K.B PERC (PART16)	U. ORGAN	L. ORGAN	ACMP1, ACMP2, ACMP3, BASS	DRUMS	CHORD	CONTROL	Remarks
Basic Channel	Default	1-16	1-16	1-16	1-16	1-16	1-16	1-16	1-16	1-16	1-16	memorized
	Changed	1-16	1-16	1-16	1-16	1-16	1-16	1-16	1-16	1-16	1-16	
Mode	Default	3	3	3	3	3	3	3	3	3	3	OMNI OFF,POLY MODE
	Messages	×	×	×	×	×	×	×	×	×	×	
	Altered	–	–	–	–	–	–	–	–	–	–	
Note Number		0-127	0-127	0-127	0-127	0-127	0-127	0-127	0-127	0-127	–	Changes depending on the position of the transpose control,octave shift,and drums type.
	True voice	0-127	0-127	0-127	0-127	0-127	0-127	0-127	0-127	0-127	–	
Velocity	Note ON	○	○	○	○	○	○	○	○	○	–	
	Note OFF	×	×	×	×	×	×	×	×	×	–	
After Touch	Key's	×	×	×	×	×	×	×	×	×	–	
	Ch's	×	×	×	×	×	×	×	×	×	–	
Pitch Bender		○×*	○×*	○×*	×	×	×	○×*	×	○×*	×	
Control Change	0,32	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	bank select MSB, LSB
	1	○×*	○×*	○×*	×	×	×	○×*	×	○×*	×	modulation
	6,38	○×*	○×*	○×*	×	×	×	×	×	×	×	data entry MSB, LSB
	7	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	×	volume
	10	○×*	○×*	○×*	×	×	×	×	×	×	×	panpot (EA5)
	11	○×*	○×*	○×*	○×*	○×*	○×*	×	×	×	○×*	expression
	64	○×*	○×*	○×*	×	○×*	○×*	○×*	×	×	×	sustain
	80	×	×	○×*	×	×	×	×	×	×	×	auto play chord
	82	×	×	×	×	×	×	×	○×*	×	×	intro, fill in, ending
	91	○×*	○×*	○×*	○×*	×	×	×	×	○×*	○×*	reverb
	92	×	×	×	×	○×*	○×*	×	×	×	×	tremolo
	93	○×*	○×*	○×*	×	×	×	○×*	×	○×*	×	digital effect
	94	×	×	×	×	○×*	○×*	×	×	×	×	Celeste
	100,101	○×*	○×*	○×*	×	×	×	×	×	×	×	RPN LSB, MSB
	120	○	○	○	○	○	○	○	○	○	×	all sound off
	121	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	×	reset all controllers
Prog Change		○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	×	Changes depending on program change mode and prog.cng to p.mem.
	True #	0-127	0-127	0-127	0-127	0-127	0-127	0-127	0-127	0-127		
System exclusive		○										
System common	Song Pos	○×*										
	Song Sel	○×* (0-19)										
	Tune	×										
System Real Time	Clock	○										
	Commands	○×*										start/stop,continue
Aux Messages	Local ON/OFF	×	×	×	×	×	×	×	×	×	–	
	All notes OFF	○	○	○	○	○	○	○	○	○	–	
	Active Sense	○										
	Reset	×										
Notes		○×*............Whether or not the data for each of these items is received can be set.										

Mode 1: OMNI ON, POLY Mode 2: OMNI ON, MONO
Mode 3: OMNI OFF, POLY Mode 4: OMNI OFF, MONO

○:Yes
×:No

PRECAUTIONS BEFORE SERVICING

■ Precautions for measuring of the output waveforms.

1. The waveform was measured with a "National Digital Storage Oscilloscope VP-5730A". Therefore the waveforms of musical tone signals shown may differ somewhat due to the difference in the timing of triggering.
2. Since the 1/10 test probe is used, the indicated voltage value on the bottom part of each waveform photo is 1/10 of the actual value (e.g. 0.2 V/cm should be 2.0 V/cm).
3. To measure the waveforms, first set this unit to the self-diagnostic mode (refer to page I-18, No. 4). The Wave ROM output will then be output as a sine wave to facilitate the servicing check.

■ Important safety notice:

Components identified by a ⚠ mark have special characteristics impotant for safety.
When replacing any of these components, use only manufacture's specified parts.

■ Symbolic Marks

The symbolic marks for resistors and capacitors which used in this circuits are classified as following TABLE-1 and TABLE-2.

1. RESISTORS
   - Resistors without symbolic mark are FIXED CARBON FILM RESISTORS (ERD-type).
   - All resistors are 1/4 WATT, ±5 % TOLERANCE unless otherwise designated in schematic diagrams.

(TABLE-1)

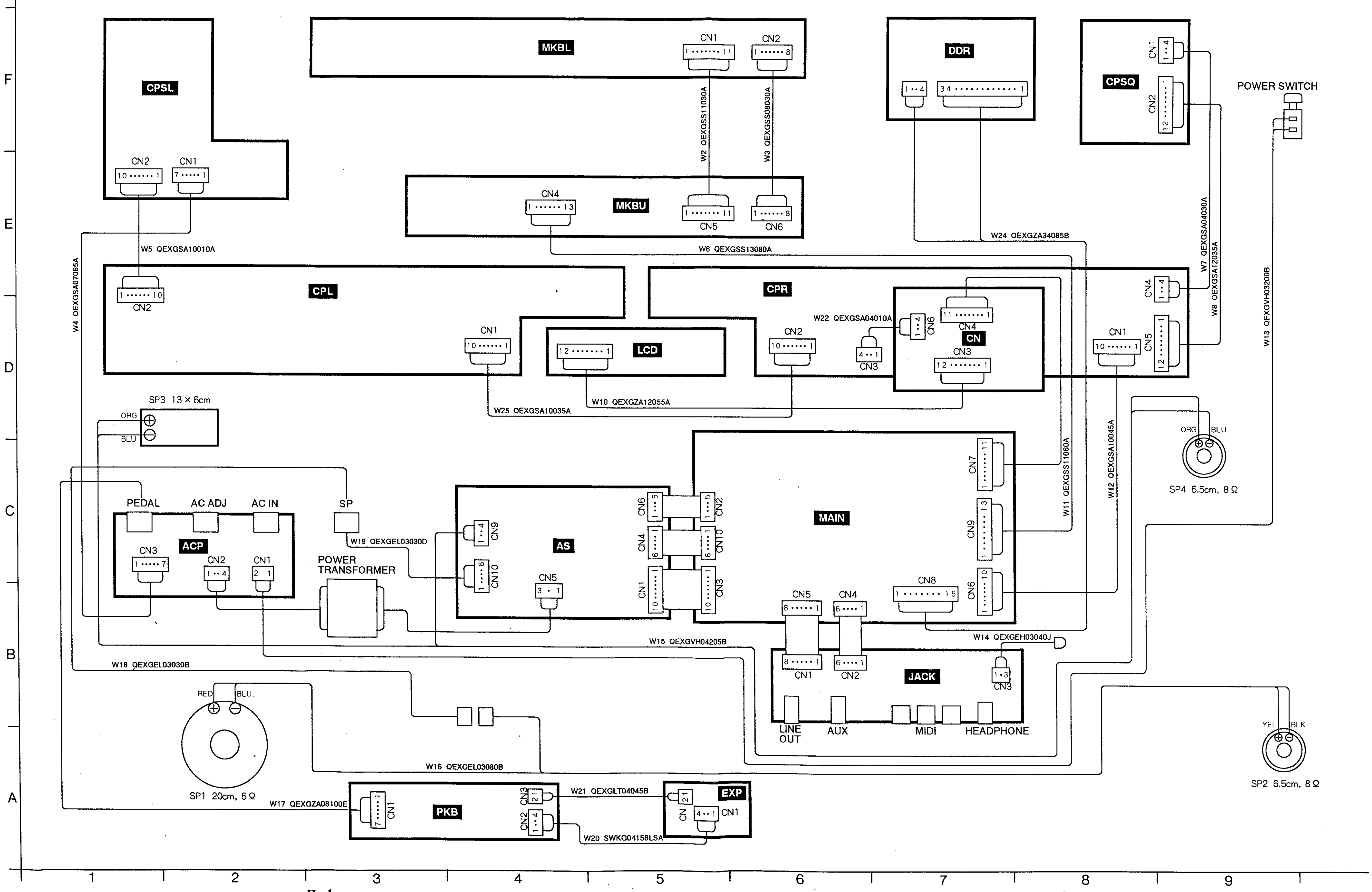
SYMBOL	SPECIFICATION	SYMBOL	SPECIFICATION
Ⓕ	Fixed Carbon Film Resistors "FLAME-PROOF" (ERD—F—type)	Ⓕ	Fixed Metal Film Resistors "FLAME-PROOF" (ERX—type)
Ⓕ	Fixed Wire Wound Resistors "FLAME-PROOF" (ERF—type)	🄵	Fuse Type Fixed Metal Oxide Film Resistors "FLAME-PROOF" (ERQ—type)
Ⓕ	Fixed Metal Oxide Film Resistors "FLAME-PROOF" (ERG—type)	🄵	Fuse Type Fixed Carbon File Resistors "FLAME-PROOF" (ERD2FC—type)
Ⓖ	Fixed Metal Film Resistors (Precision and High Stability) (ERO—type)		

2. CAPACITORS
   - Capacitors without symbolic mark are POLYESTER CAPACITORS. (ECQM-type, ECQG-type, ±10 % Tolerance)
   - Polarized capacitors without symbolic mark are Aluminum Electrolytic Capapcitors. (ECEA-type, ±20 % Tolerance)

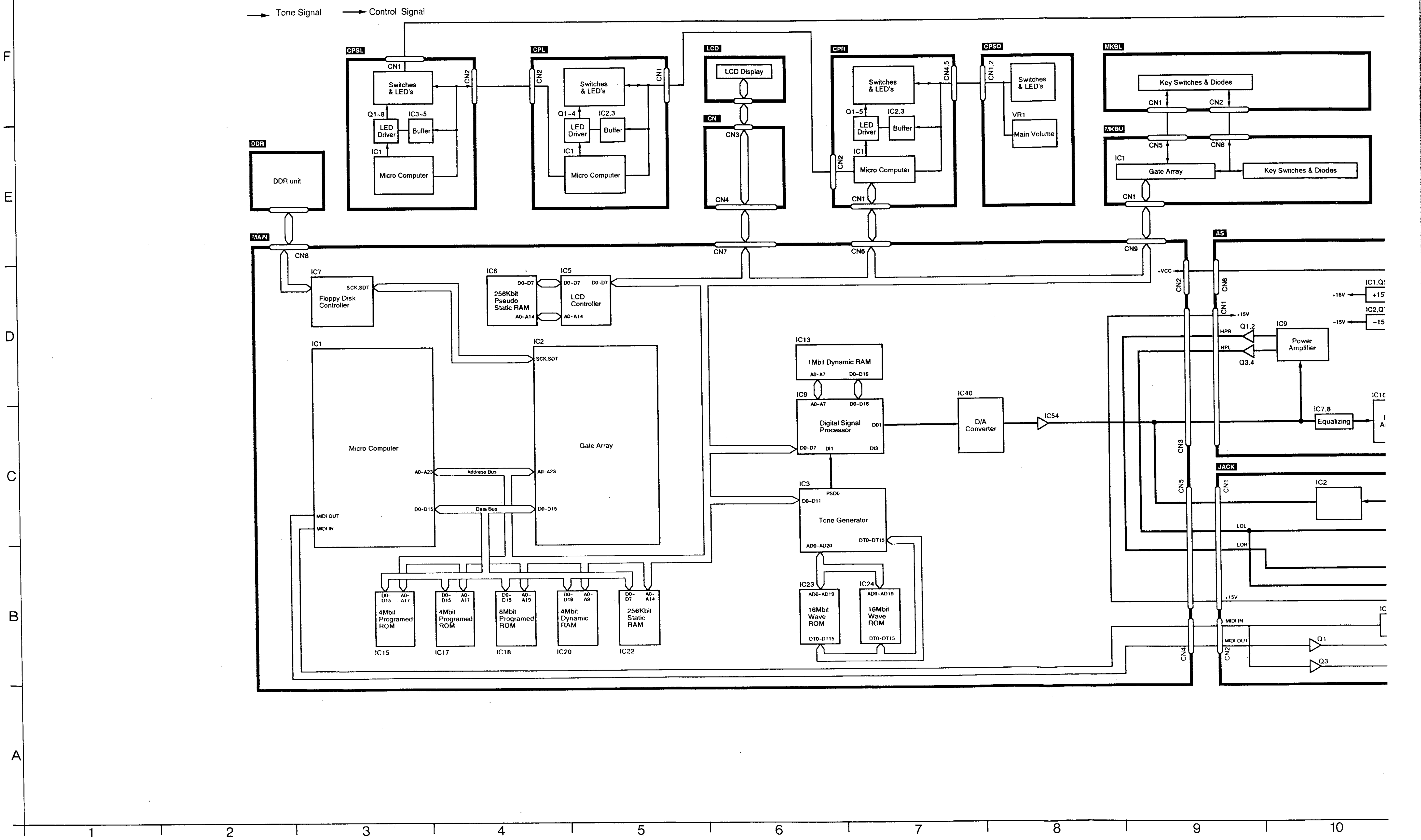
(TABLE-2)

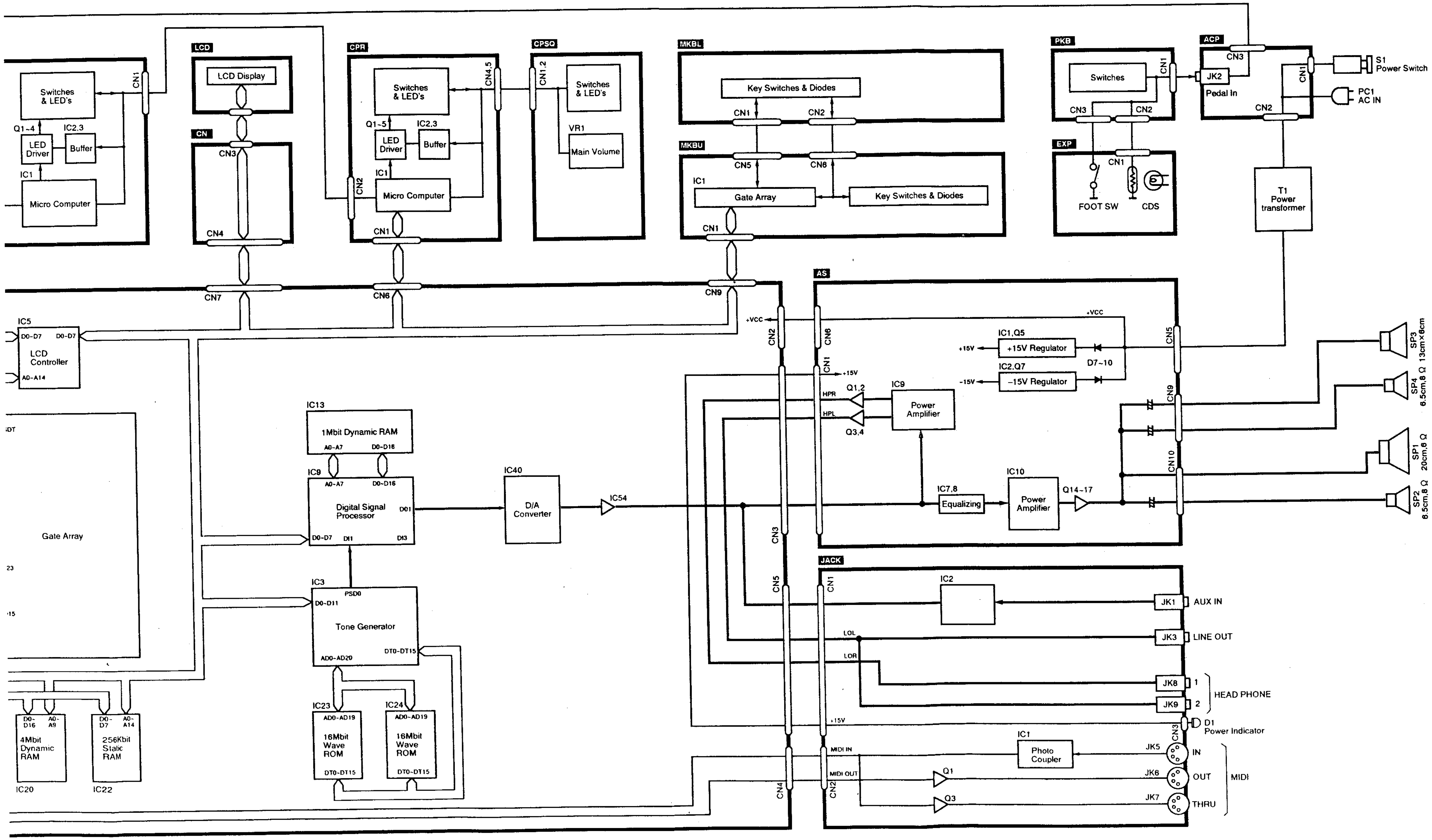
SYMBOL	SPECIFICATION	TYPE
Ⓝ	Non-Polarized Electrolytic Capacitors	ECEA_KN_type
Ⓨ	Non-Polarized Electrolytic (for Network system)	ECEA_Y_type
Ⓣ	Tantalum Solid Electrolytic Capacitors	ECS_type
(TF)	Metalized Plastic Film Capacitors (TF Series)	ECQV_type
○	Temperature Compensating Ceramic Capacitors	ECC_type
	High-Dielectric Constant Ceramic Capacitors	ECK_type ECR_type
	Axial Lead Ceramic Capacitors	ECB_type
	Metalized Polyester Film Capacitors for Across the Line	ECQ_EW_type
	Aluminum Electrolytic Capacitors for Smoothing Circuit	ECES_type
	Multilayer Ceramic Chip Capacitors	ECUV_type

WIRING CONNECTION Diagram


CPSL
CN2
10 ••••••• 1
CN1
7 ••••• 1
MKBL
CN1
1 ••••••• 11
CN2
1 •••••• 8
W2 QEXGSS11030A
W3 QEXGSS08030A
MKBU
CN4
1 ••••••• 13
CN5
CN6
DDR
1 •• 4
34 •••••••••••• 1
CPSQ
CN1
1 •• 4
CN2
12 ••••••• 1
POWER SWITCH
W5 QEXGSA10010A
W4 QEXGSA07065A
W6 QEXGSS13080A
W24 QEXGZA34085B
W7 QEXGSA04030A
W8 QEXGSA12035A
W13 QEXGVH03200B
CPL
CN2
1 •••••• 10
CN1
10 •••••• 1
LCD
12 ••••••• 1
CPR
CN2
W22 QEXGSA04010A
CN3
4 •• 1
CN
CN6
CN4
11 ••••••• 1
CN3
12 ••••••• 1
CN1
CN4
CN5
W25 QEXGSA10035A
W10 QEXGZA12055A
SP3 13 × 6cm
ORG
BLU
SP4 6.5cm, 8 Ω
ORG
BLU
W11 QEXGSS11060A
W12 QEXGSA10045A
PEDAL
AC ADJ
AC IN
SP
ACP
CN3
1 ••••• 7
CN2
1 •• 4
CN1
2 1
W19 QEXGEL03030D
POWER TRANSFORMER
AS
CN9
1 •• 4
CN10
1 •••• 6
CN5
3 • 1
CN6
CN4
CN1
MAIN
CN2
CN10
CN3
CN7
CN9
CN6
CN8
1 •••••••• 15
CN5
8 ••••• 1
CN4
6 •••• 1
W15 QEXGVH04205B
W14 QEXGEH03040J
JACK
CN1
CN2
CN3
1 • 3
LINE OUT
AUX
MIDI
HEADPHONE
W18 QEXGEL03030B
RED
BLU
SP1 20cm, 6 Ω
W16 QEXGEL03080B
YEL
BLK
SP2 6.5cm, 8 Ω
W17 QEXGZA08100E
PKB
CN1
CN3
CN2
W21 QEXGLT04045B
W20 SWKG04158LSA
EXP
CN
CN1
4 •• 1
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9

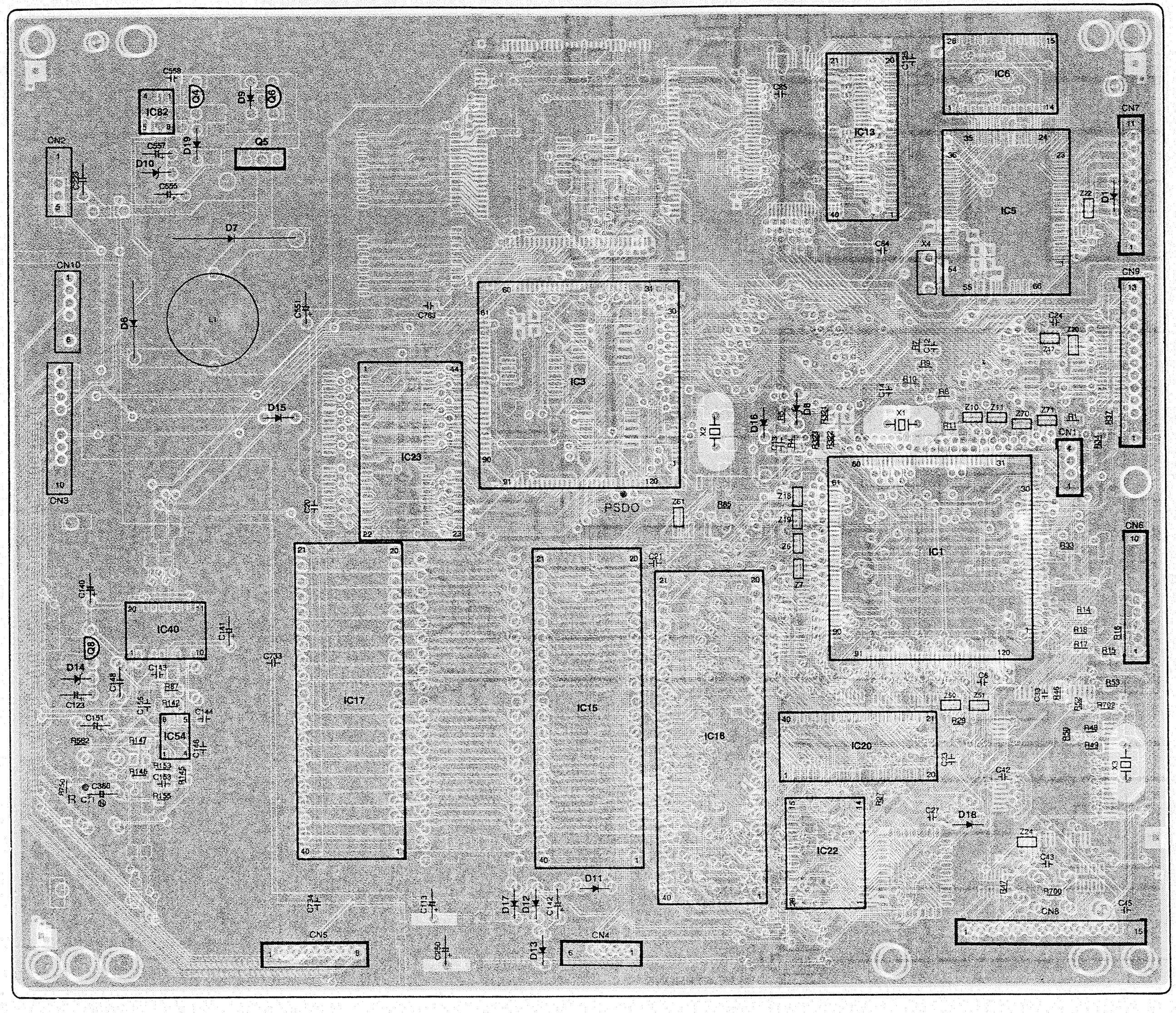
BLOCK Diagram


Tone Signal
Control Signal
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
CPSL
CN1
CN2
Switches & LED's
Q1~8
IC3~5
LED Driver
Buffer
IC1
Micro Computer
CPL
CN2
CN1
Switches & LED's
Q1~4
IC2,3
LED Driver
Buffer
IC1
Micro Computer
LCD
LCD Display
CN
CN3
CN4
CPR
CN4,5
CN2
Switches & LED's
Q1~5
IC2,3
LED Driver
Buffer
IC1
Micro Computer
CN1
CPSQ
CN1,2
Switches & LED's
VR1
Main Volume
MKBL
Key Switches & Diodes
CN1
CN2
MKBU
CN5
CN6
IC1
Gate Array
Key Switches & Diodes
CN1
DDR
DDR unit
MAIN
CN8
CN7
CN6
CN9
IC7
SCK,SDT
Floppy Disk Controller
IC6
D0~D7
256Kbit Pseudo Static RAM
A0~A14
IC5
D0~D7
D0~D7
LCD Controller
A0~A14
IC1
Micro Computer
A0~A23
D0~D15
MIDI OUT
MIDI IN
Address Bus
Data Bus
IC2
SCK,SDT
Gate Array
A0~A23
D0~D15
D0~D15
A0~A17
4Mbit Programed ROM
IC15
D0~D15
A0~A17
4Mbit Programed ROM
IC17
D0~D15
A0~A19
8Mbit Programed ROM
IC18
D0~D16
A0~A9
4Mbit Dynamic RAM
IC20
D0~D7
A0~A14
256Kbit Static RAM
IC22
IC13
1Mbit Dynamic RAM
A0~A7
D0~D16
IC9
A0~A7
D0~D16
Digital Signal Processor
DO1
D0~D7
DI1
DI3
IC3
PSD0
D0~D11
Tone Generator
AD0~AD20
DT0~DT15
IC23
AD0~AD19
16Mbit Wave ROM
DT0~DT15
IC24
AD0~AD19
16Mbit Wave ROM
DT0~DT15
IC40
D/A Converter
IC54
+VCC
CN2
CN3
CN5
CN4
AS
CN6
CN1
+15V
HPR
HPL
Q1,2
Q3,4
IC9
Power Amplifier
IC7,8
Equalizing
+15V
-15V
JACK
CN1
IC2
LOL
LOR
+15V
MIDI IN
MIDI OUT
CN2
Q1
Q3


Switches & LED's
CN1
Q1~4
IC2,3
LED Driver
Buffer
IC1
Micro Computer
LCD
LCD Display
CN
CN3
CN4
CPR
Switches & LED's
CN4,5
Q1~5
IC2,3
LED Driver
Buffer
IC1
CN2
Micro Computer
CN1
CPSO
CN1,2
Switches & LED's
VR1
Main Volume
MKBL
Key Switches & Diodes
CN1
CN2
MKBU
CN5
CN8
IC1
Gate Array
Key Switches & Diodes
CN1
CN7
CN6
CN9
PKB
Switches
CN1
CN3
CN2
EXP
CN1
FOOT SW
CDS
ACP
CN3
JK2
Pedal In
CN1
CN2
S1 Power Switch
PC1 AC IN
T1 Power transformer
IC5
D0-D7
D0-D7
LCD Controller
A0-A14
Gate Array
IC13
1Mbit Dynamic RAM
A0-A7
D0-D16
IC9
A0-A7
D0-D16
Digital Signal Processor
DO1
D0-D7
DI1
DI3
IC40
D/A Converter
IC54
IC3
PSD0
D0-D11
Tone Generator
DT0-DT15
AD0-AD20
IC23
IC24
AD0-AD19
AD0-AD19
16Mbit Wave ROM
16Mbit Wave ROM
DT0-DT15
DT0-DT15
D0-D16
A0-A9
4Mbit Dynamic RAM
IC20
D0-D7
A0-A14
256Kbit Static RAM
IC22
CN2
CN3
CN5
CN4
AS
+VCC
+VCC
CN6
CN1
+15V
HPR
HPL
Q1,2
Q3,4
IC9
Power Amplifier
IC1,Q5
+15V
+15V Regulator
IC2,Q7
-15V
-15V Regulator
D7~10
CN5
CN9
CN10
IC7,8
Equalizing
IC10
Power Amplifier
Q14~17
SP3 13cm×6cm
SP4 6.5cm,8 Ω
SP1 20cm,8 Ω
SP2 6.5cm,8 Ω
JACK
CN1
IC2
JK1
AUX IN
LOL
JK3
LINE OUT
LOR
JK8
1
JK9
2
HEAD PHONE
+15V
D1
Power Indicator
CN3
IC1
MIDI IN
Photo Coupler
JK5
IN
MIDI OUT
Q1
JK6
OUT
MIDI
Q3
JK7
THRU
CN2

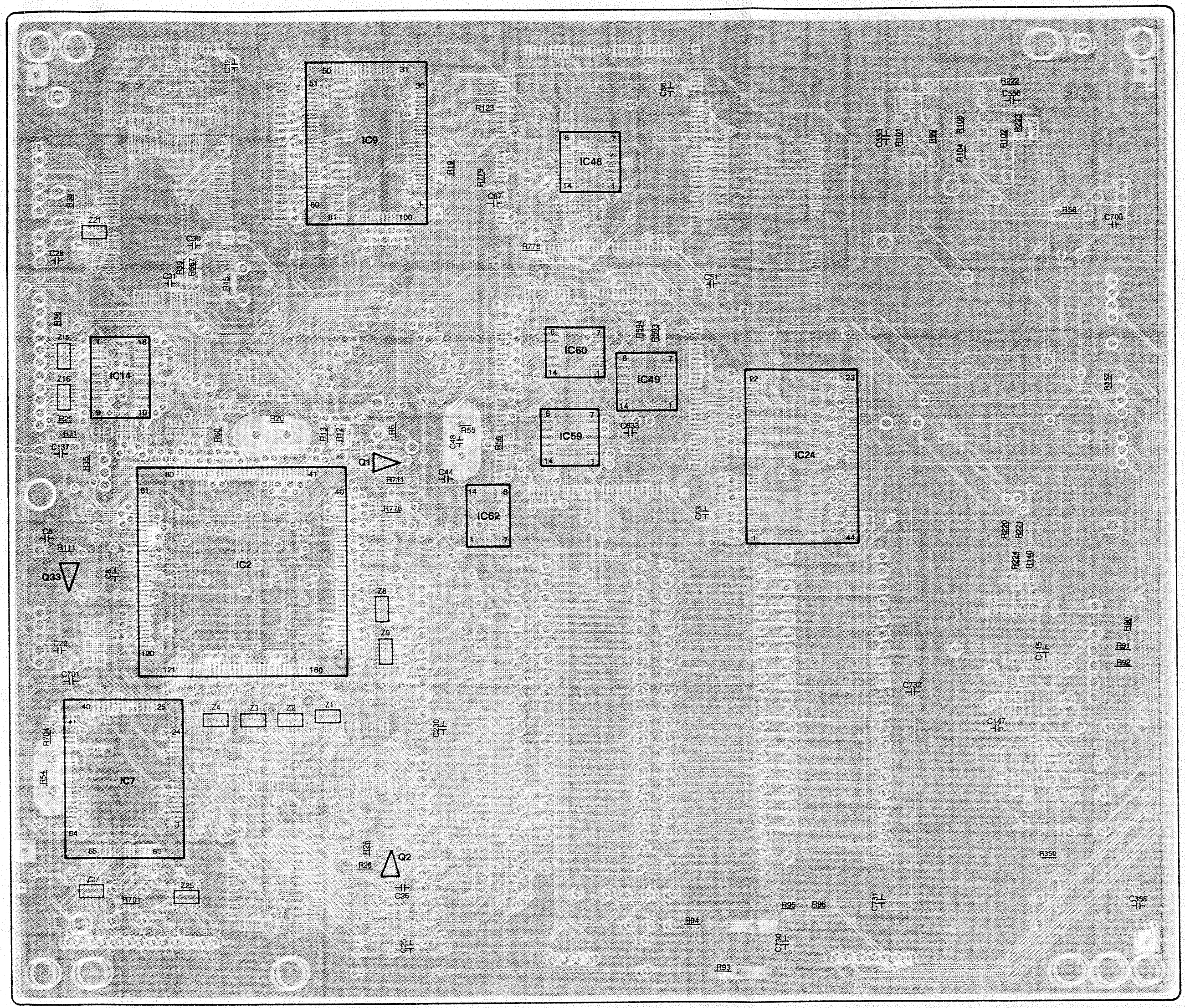
MAIN P.C. Board

MAIN (SXPG221121) (COMPONENT SIDE)



IC1
IC3
IC5
IC6
IC13
IC15
IC17
IC18
IC20
IC22
IC23
IC40
IC54
IC62
CN1
CN2
CN3
CN4
CN5
CN6
CN7
CN8
CN10
CN19
Q5
D7
D10
D11
D14
D15
D16
D18
D19
X1
X3
X4
PSDO

MAIN (COMPONENT SIDE)



IC2
IC7
IC9
IC14
IC24
IC46
IC49
IC50
IC52
IC59
Q1
Q2
D33
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9

MAIN

NOTES:

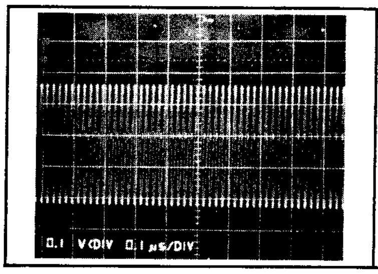
- IC'S
  - IC1: D70236AGD10
  - IC2: D65046GD188
  - IC3: TC25540AF006
  - IC5: SED1330FBA
  - IC6: LH5P832N-10
  - IC7: D72068GF-3B9
  - IC9: D6383GF-3B9
  - IC13: M511664-80JS
  - IC14: D74HC244GS
  - IC15: QSIGCEA3AX
  - IC15-1: 〔HN27C4096G10〕
  - IC17: QSIGCEA3CX
  - IC17-1: 〔HN27C4096G1〕
  - IC18: QSIGH3C08E64
  - IC20: M5M44170AJ8S
  - IC22: LH52B256N7LL
  - IC23: QSIGH3C16DD9
  - IC24: QSIGH3C08E61
  - IC40: PCM69AU
  - IC48: D74HC74GS
  - IC49: D74HC393GS
  - IC54: M5218AFP
  - IC59: D74HC08GS
  - IC60: D74HC32GS
  - IC62: D74HC04GS
  - IC82: BA10393F
- TRANSISTORS
  - Q1: 2SB709AR
  - Q2: 2SD601AQ
  - Q4: 2SC1815GR
  - Q5: 2SB946P
  - Q6, 8: 2SC1815GR
  - Q33: 2SD601AQ
- DIODES
  - D1: MA165
  - D6: MA2062LF
  - D7: SVDGERC9102
  - D8: MA1030
  - D9: MA165
  - D10: MA4051
  - D11～13: MA165
  - D14: MA4056
  - D15～19: MA165

■ Measuring Condition ■波形の測定条件

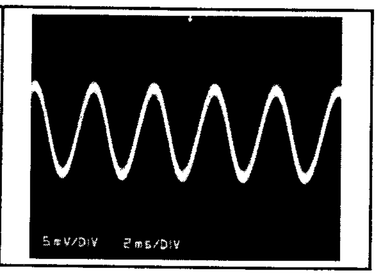
Set the initial setting mode (Refer to page I-3)
イニシャルセッティングを行なってください。(I-3 ページ参照)

- SOUND .... LOWER TAB ORGAN 8′
- TREMOLO .... ON
- KEYBOARD C3
- RHYTHM.. Start
- TEMPO... ♩ =120

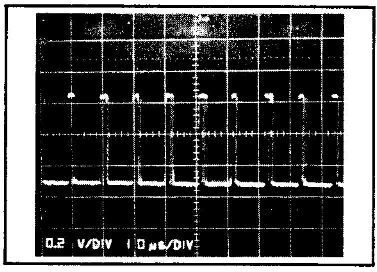
X1



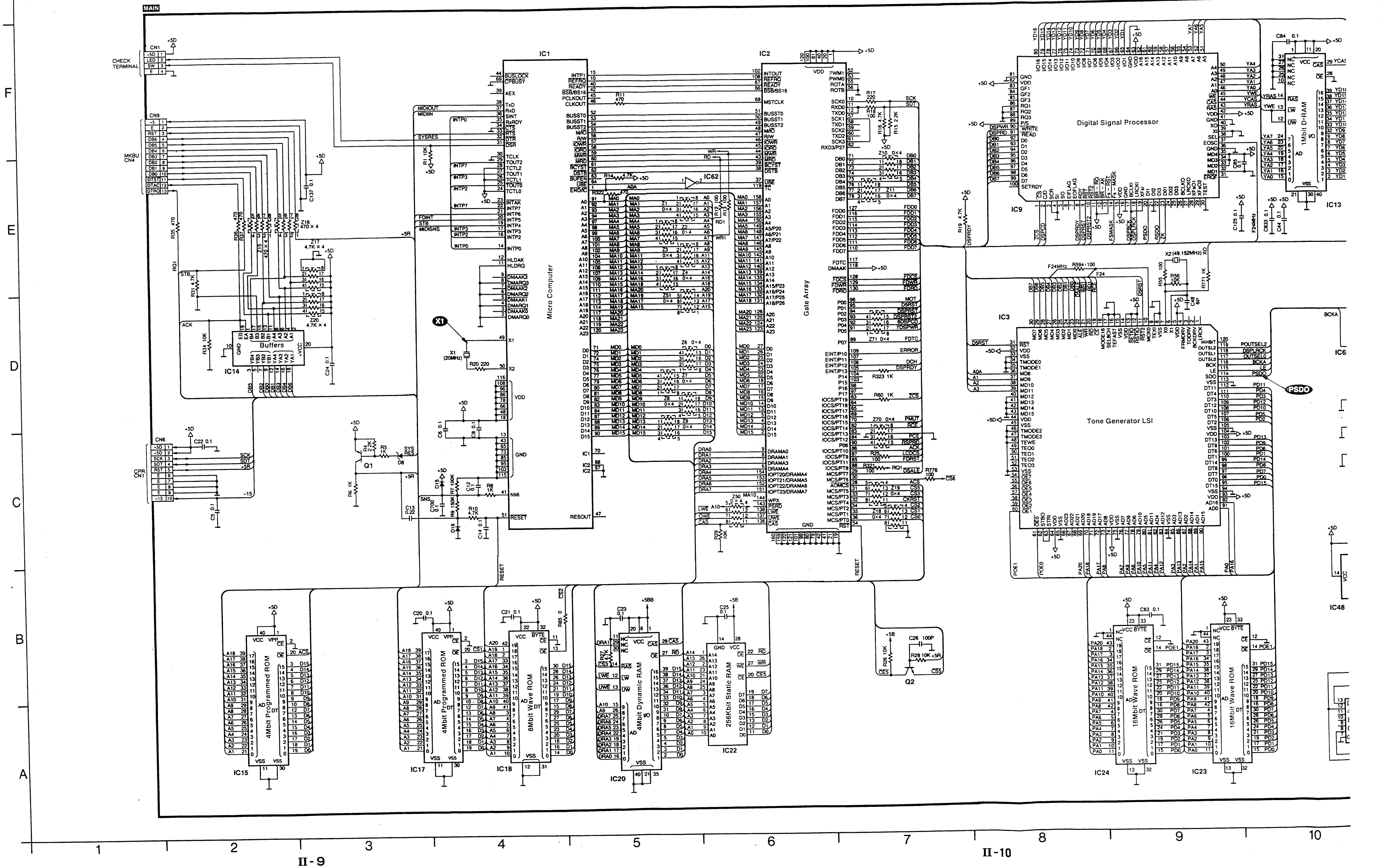
Rch

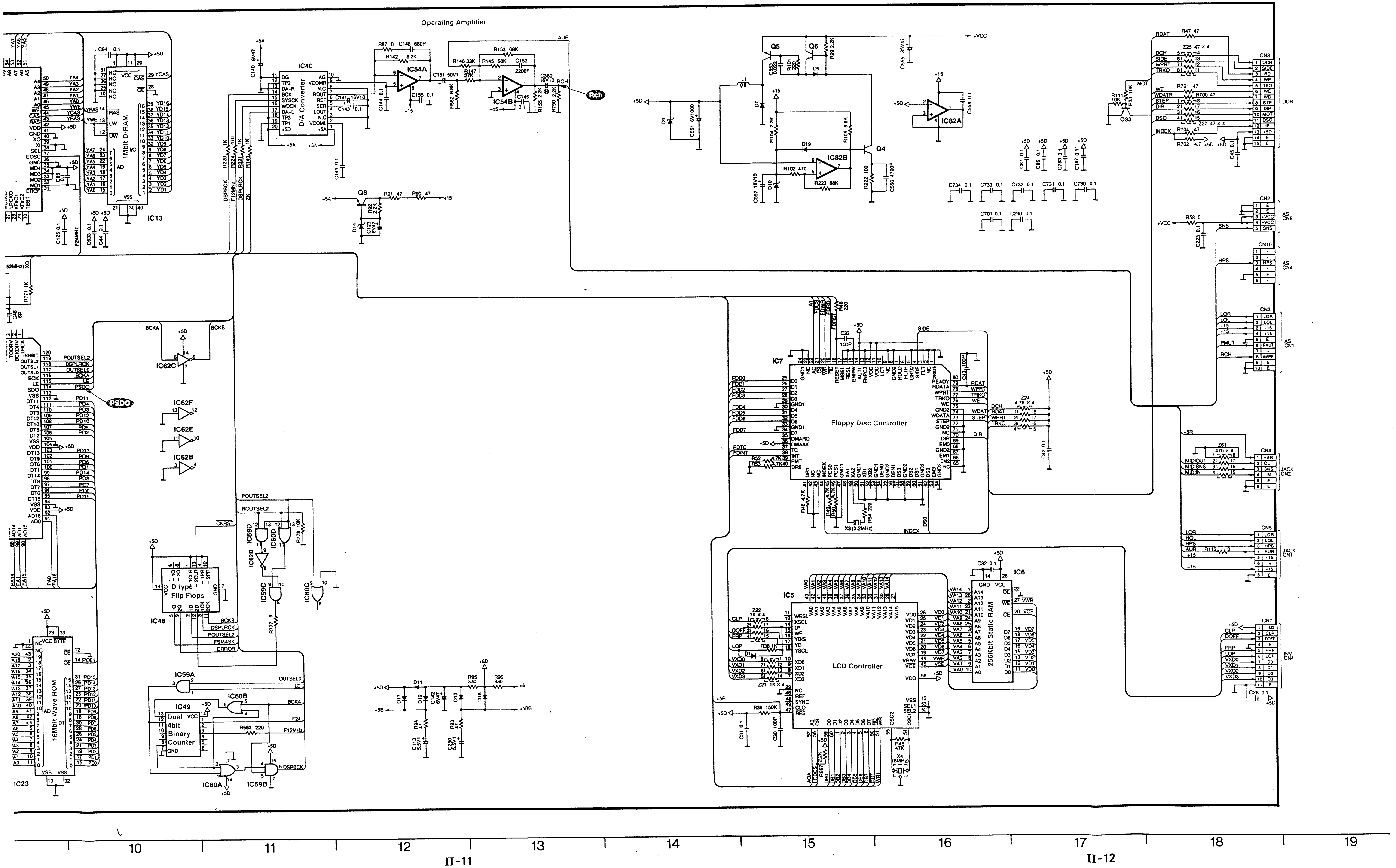


PSD0



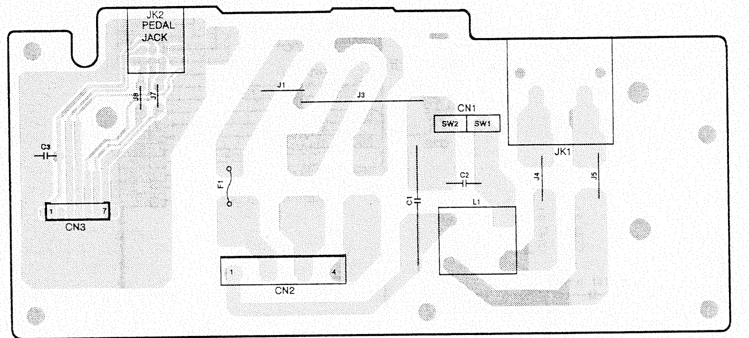
MAIN P.C. Diagram


MAIN
CHECK TERMINAL
CN1
MKBU CN4
CN9
CPR CN1
CN6
IC1
Micro Computer
IC2
Gate Array
IC14
Buffers
IC62
X1
X1 (20MHz)
Q1
Q2
IC3
Tone Generator LSI
IC9
Digital Signal Processor
IC13
1Mbit D-RAM
X2 (49.152MHz)
PSDO
IC15
4Mbit Programmed ROM
IC17
4Mbit Programmed ROM
IC18
8Mbit Wave ROM
IC20
4Mbit Dynamic RAM
IC22
256Kbit Static RAM
IC24
16Mbit Wave ROM
IC23
16Mbit Wave ROM
IC48
IC6
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10


Operating Amplifier
IC40
D/A Converter
IC54A
IC54B
IC82A
IC82B
Rch
PSDO
1Mbit D-RAM
IC13
16Mbit Wave ROM
IC23
IC62C
IC62F
IC62E
IC62B
D type Flip Flops
IC48
IC59D
IC60D
IC62D
IC59C
IC60C
IC59A
IC60B
IC49
Dual 4bit Binary Counter
IC60A
IC59B
Q5
Q6
Q4
Q8
Q33
IC7
Floppy Disc Controller
X3 (3.2MHz)
IC5
LCD Controller
IC6
256Kbit Static RAM
X4 (8MHz)
CN8
DDR
CN2
AS CN6
CN10
AS CN4
CN3
AS CN1
CN4
JACK CN2
CN5
JACK CN1
CN7
INV CN4
10
11
12
13
14
15
16
17
18
19

AS/ACP

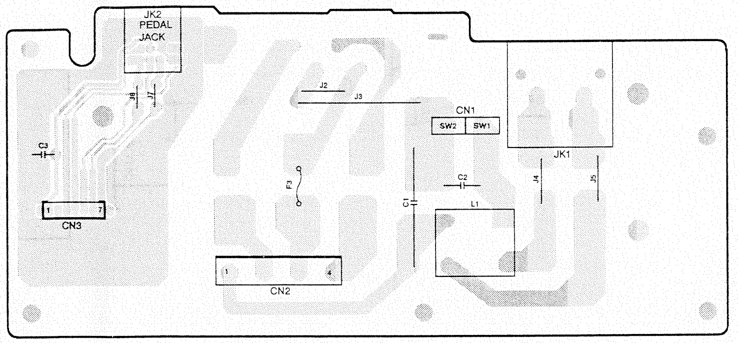
日本向 (SXPG222541B)
ACP **M** **MC** **XM** (SXPG222521B)


JK2
PEDAL
JACK
J1
J3
CN1
SW2
SW1
JK1
C2
F1
C2
C1
L1
J4
J5
CN3
CN2

ACP
NOTE:
- FUSE

F1 **M** **MC** **XM**:	XBA1C40NU100
F1 日本向:	XBA1C20NS5

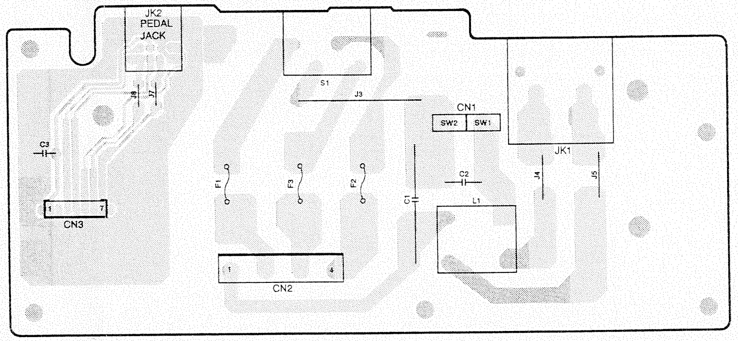
XL (SXPG222551B)
ACP Others (SXPG222511B)


JK2
PEDAL
JACK
J2
J3
CN1
SW2
SW1
JK1
C3
F3
C2
C1
L1
J4
J5
CN3
CN2

ACP
NOTE:
- FUSE

F3:	XBA2C10TB0

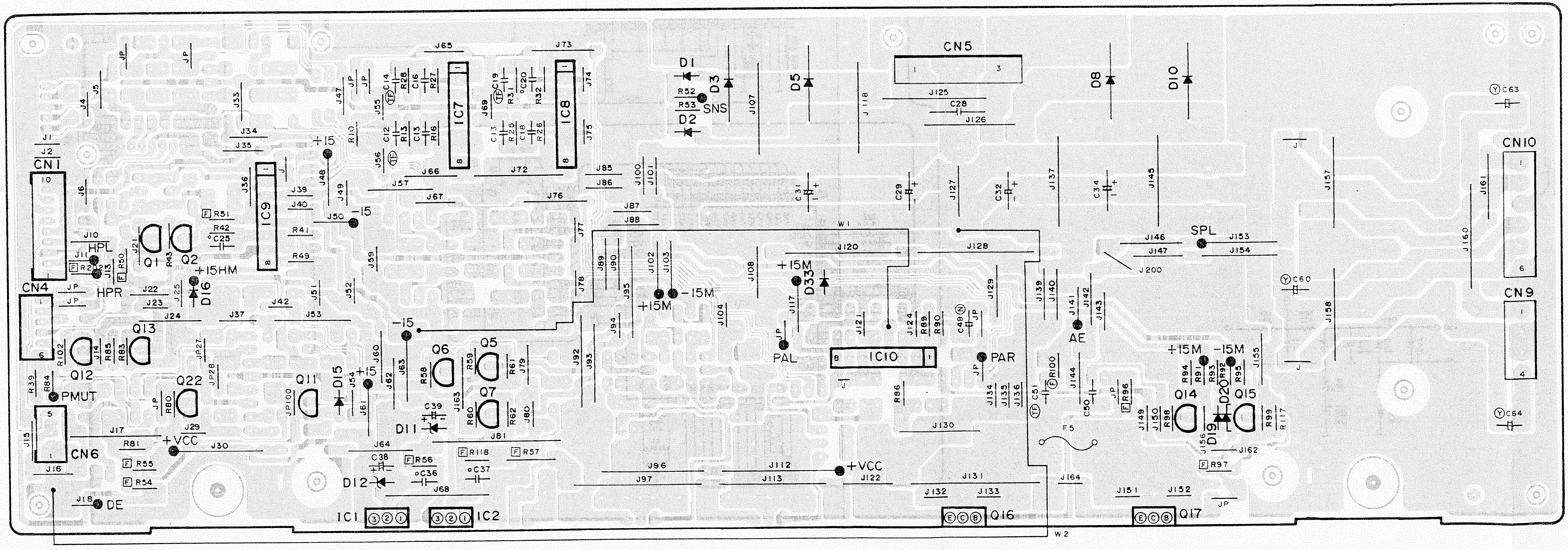
XR (SXPG222561B)
ACP **X** **XD** **XT** **XS** (SXPG222531B)


JK2
PEDAL
JACK
S1
J3
CN1
SW2
SW1
JK1
C3
F1
F3
F2
C2
C1
L1
J4
J5
CN3
CN2

ACP
NOTE:
- FUSES

F1:	XBA2C16TB0
F2, 3:	XBA2C10TB0

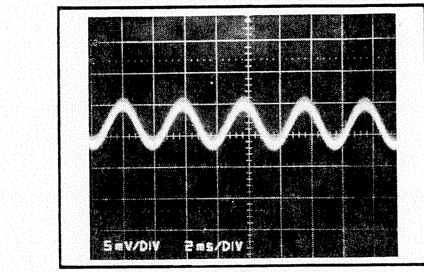
日本向 (SXPG2170141)
Others (SXPG2170121)
AS **M** **MC** **XM** (SXPG2170131)


CN1
CN4
CN5
CN6
CN9
CN10
IC1
IC2
IC7
IC8
IC9
IC10
Q1
Q2
Q5
Q6
Q7
Q11
Q12
Q13
Q14
Q15
Q16
Q17
Q22
D1
D2
D3
D5
D8
D10
D11
D12
D15
D16
D19
D20
D33
SNS
HPL
HPR
+15HM
PMUT
+VCC
DE
+15
-15
+15M
-15M
PAL
PAR
SPL
AE
F5
C63
C60
C64
W1
W2

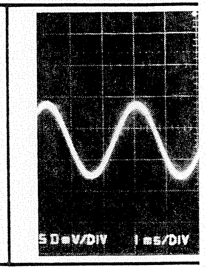
■ Waveform measurement

1. Activate the initial setting method. (Refer to p
1. イニシャルセッティングを行なってください。（I-
2. Set the E. organ to reference required mode a
2. 次のようにセッティングしてください。
   - LOWER ORCHESTRAL CONDUCTOR..... TA
   - LOWER TAB & ORGAN .... FL
   - TREMOLO.. OF
   - DIGITAL REVERB .... AL
3. Key C3

PAR, PAL



SPL



AS
NOTES:

• IC'S	
IC1:	M5F78M15L
IC2:	M5F79M15L
IC7～10:	M5218AL
• TRANSISTORS	
Q1:	2SC3940ARS
Q2:	2SA1534AR
Q5, 6:	2SA1015-GR
Q7, 11, 12:	2SC1815GR
Q13:	2SA1015-GR
Q14:	2SC1815GR
Q15:	2SA1015-GR
Q16, 33:	2SB946P
Q17:	2SD1271P
Q22:	2SA1015-GR
• DIODES	
D1, 2:	SVDGERA1502
D3, 5, 8, 10:	SVDS3V20
D11, 12:	MA4180
D15:	MA165
D16:	EK04
D19, 20:	MA29WA
• FUSES	
F5 Others:	XBA2C20TB0
F5 **M** **MC** **XM**:	XBA1C25NU100
F5 日本向:	XBA1C25NS5

measurement

initial setting method. (Refer to page Ⅰ-7)

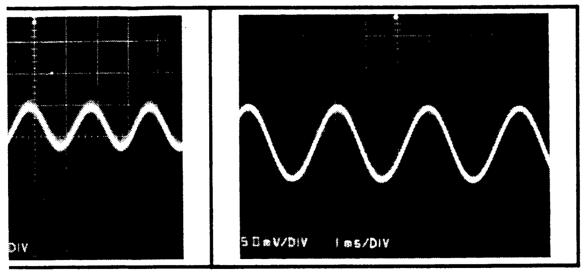
ッティングを行なってください。(Ⅰ-7 ページ参照)

rgan to reference required mode as followings.

ッティングしてください。

RCHESTRAL CONDUCTOR..... TAB & ORGAN
AB & ORGAN .... FLUTE 8′ : ON
.... OFF
REVERB .... ALL OFF
.... C3

SPL

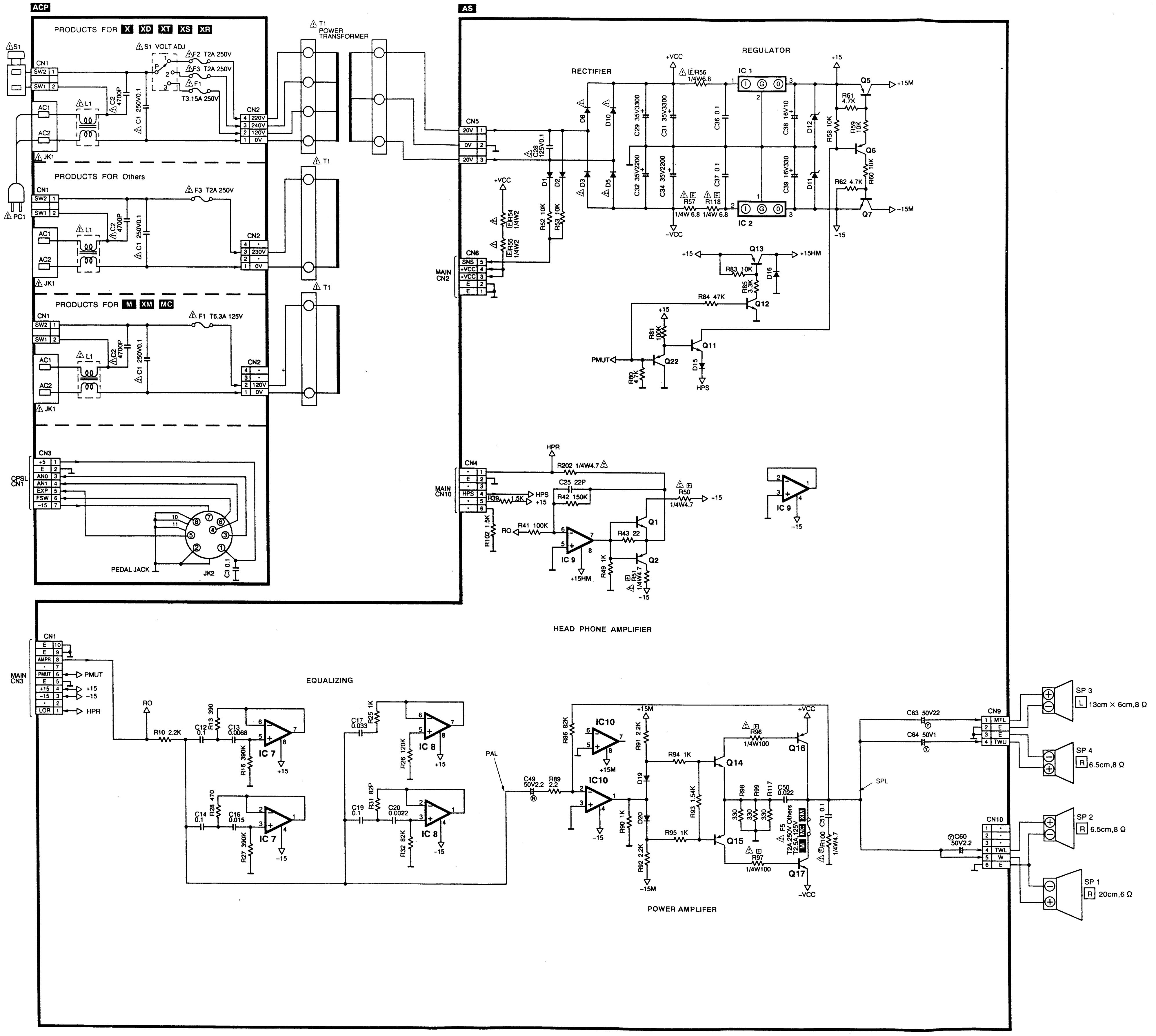


M5F78M15L
M5F79M15L
M5218AL

2SC3940ARS
2SA1534AR
2SA1015-GR
2SC1815GR
2SA1015-GR
2SC1815GR
2SA1015-GR
2SB946P
2SD1271P
2SA1015-GR

SVDGERA1502
SVDS3V20
MA4180
MA165
EK04
MA29WA

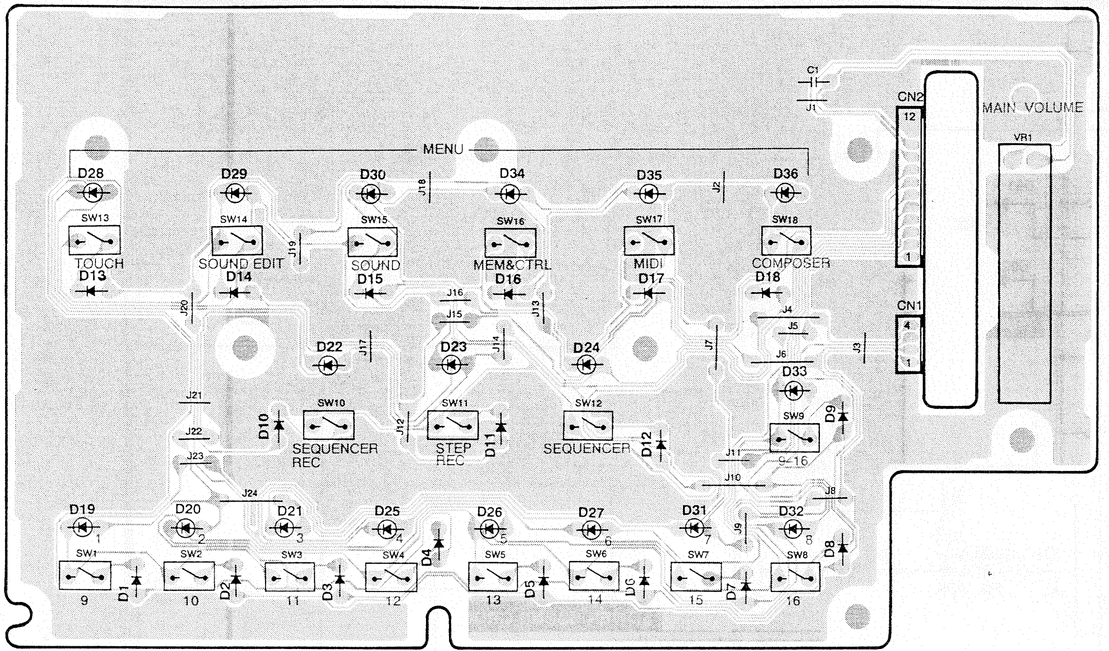
XBA2C20TB0
XBA1C25NU100
XBA1C25NS5



ACP
AS
PRODUCTS FOR X XD XT XS XR
PRODUCTS FOR Others
PRODUCTS FOR M XM MC
S1 VOLT ADJ
F2 T2A 250V
F3 T2A 250V
F1 T3.15A 250V
F3 T2A 250V
F1 T6.3A 125V
T1 POWER TRANSFORMER
T1
S1
PC1
CN1
CN2
CN3
JK1
L1
C1 250V0.1
C2 4700P
220V
240V
120V
0V
230V
CPSL CN1
PEDAL JACK
JK2
C3 0.1
RECTIFIER
REGULATOR
IC 1
IC 2
CN5
20V
0V
C28 125V0.1
D1
D2
D3
D5
D8
D10
C29 35V3300
C31 35V3300
C32 35V2200
C34 35V2200
C36 0.1
C37 0.1
C38 16V/10
C39 16V/330
R56 1/4W6.8
R57 1/4W 6.8
R118 1/4W 6.8
D11
D12
R58 10K
R59 10K
R60 10K
R61 4.7K
R62 4.7K
Q5
Q6
Q7
+VCC
-VCC
+15
-15
+15M
-15M
CN6
MAIN CN2
SNS
R52 10K
R53 10K
R54 1/4W2
R55 1/4W2
Q13
R83 10K
R85 3.3K
D16
+15HM
R84 47K
Q12
R81 100K
Q11
Q22
R80 4.7K
D15
PMUT
HPS
HPR
R202 1/4W4.7
CN4
MAIN CN10
C25 22P
R42 150K
R39 1.5K
R50 1/4W4.7
R41 100K
RO
R102 1.5K
R43 22
Q1
Q2
R49 1K
R51 1/4W4.7
IC 9
HEAD PHONE AMPLIFIER
MAIN CN3
AMPR
LOR
EQUALIZING
R10 2.2K
C12 0.1
R13 390
C13 0.0068
R16 390K
IC 7
R28 470
C14 0.1
C16 0.015
R27 390K
C17 0.033
R25 1K
R26 120K
IC 8
C19 0.1
R31 82P
C20 0.0022
R32 82K
PAL
C49 50V2.2
R89 2.2
IC10
R86 82K
R91 2.2K
R90 1K
R92 2.2K
D19
D20
R94 1K
R95 1K
R93 1.54K
Q14
Q15
Q16
Q17
R96 1/4W100
R97 1/4W100
R98 330
R99 330
R117 330
C50 0.022
F5 T2A 250V Others T2A 125V M MC XM
R100 1/4W4.7
C51 0.1
POWER AMPLIFER
SPL
C63 50V22
C64 50V1
C60 50V2.2
CN9
CN10
MTL
TWU
TWL
SP 3 L 13cm × 6cm,8 Ω
SP 4 R 6.5cm,8 Ω
SP 2 R 6.5cm,8 Ω
SP 1 R 20cm,6 Ω

CPSQ/JACK

CPSQ (SXPG221211B)

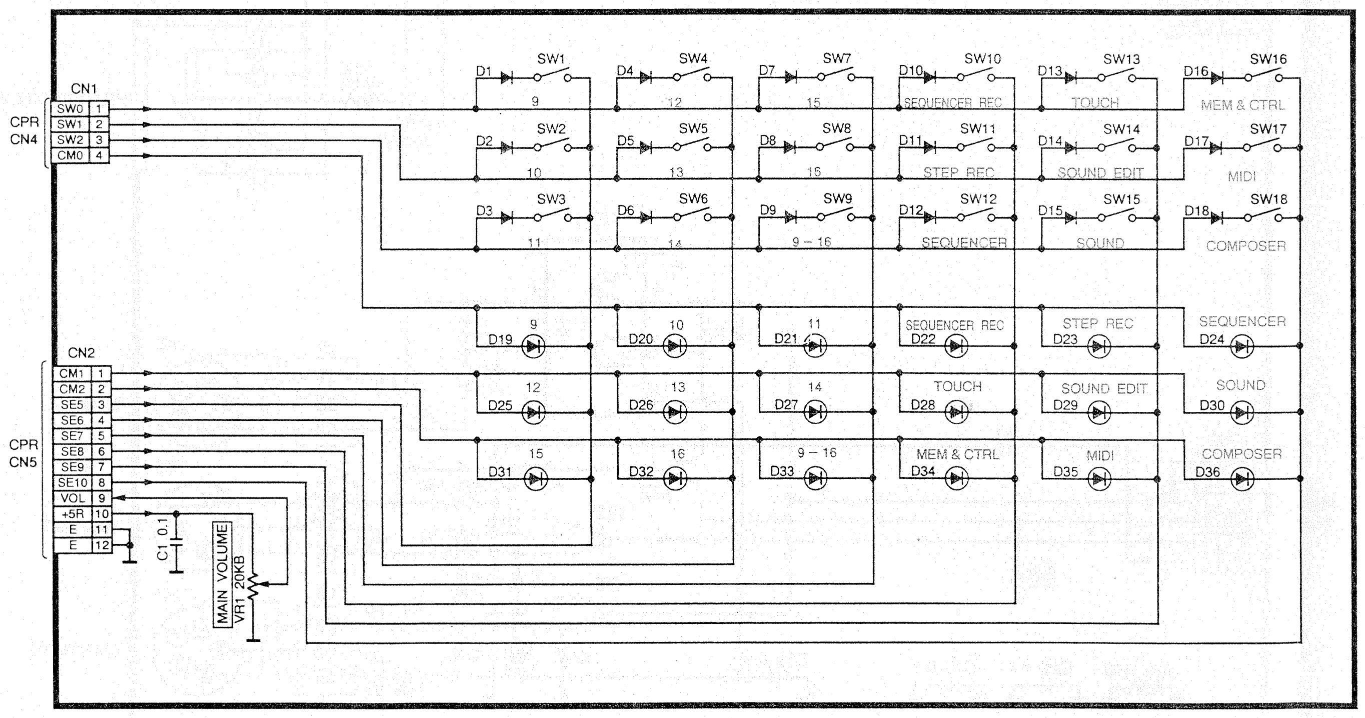

MENU
D28
D29
D30
D34
D35
D36
SW13
SW14
SW15
SW16
SW17
SW18
TOUCH
SOUND EDIT
SOUND
MEM&CTRL
MIDI
COMPOSER
D13
D14
D15
D16
D17
D18
D22
D23
D24
D33
SW10
SW11
SW12
SW9
SEQUENCER REC
STEP REC
SEQUENCER
9~16
D10
D11
D12
D9
D19
D20
D21
D25
D26
D27
D31
D32
SW1
SW2
SW3
SW4
SW5
SW6
SW7
SW8
9
10
11
12
13
14
15
16
D1
D2
D3
D4
D5
D6
D7
D8
CN2
CN1
C1
MAIN VOLUME
VR1

CPSQ

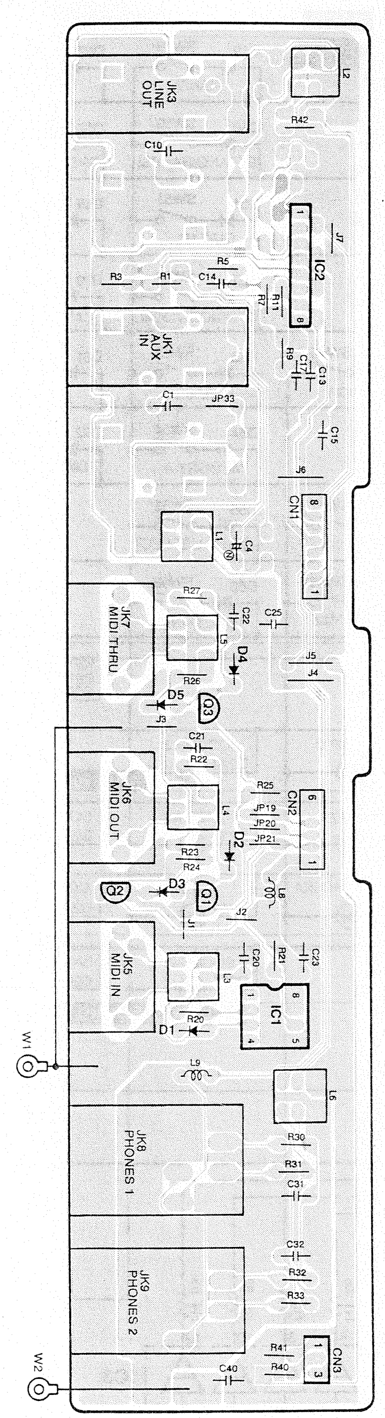
NOTE:

- DIODES
  D1~18: MA165
  D19~36: LN382G

CPSQ


CPR CN4
CN1
SW0 1
SW1 2
SW2 3
CM0 4
CPR CN5
CN2
CM1 1
CM2 2
SE5 3
SE6 4
SE7 5
SE8 6
SE9 7
SE10 8
VOL 9
+5R 10
E 11
E 12
C1 0.1
MAIN VOLUME
VR1 20KB
D1 SW1 9
D4 SW4 12
D7 SW7 15
D10 SW10 SEQUENCER REC
D13 SW13 TOUCH
D16 SW16 MEM & CTRL
D2 SW2 10
D5 SW5 13
D8 SW8 16
D11 SW11 STEP REC
D14 SW14 SOUND EDIT
D17 SW17 MIDI
D3 SW3 11
D6 SW6 14
D9 SW9 9 – 16
D12 SW12 SEQUENCER
D15 SW15 SOUND
D18 SW18 COMPOSER
D19 9
D20 10
D21 11
D22 SEQUENCER REC
D23 STEP REC
D24 SEQUENCER
D25 12
D26 13
D27 14
D28 TOUCH
D29 SOUND EDIT
D30 SOUND
D31 15
D32 16
D33 9 – 16
D34 MEM & CTRL
D35 MIDI
D36 COMPOSER

JACK (SXPG222511A)

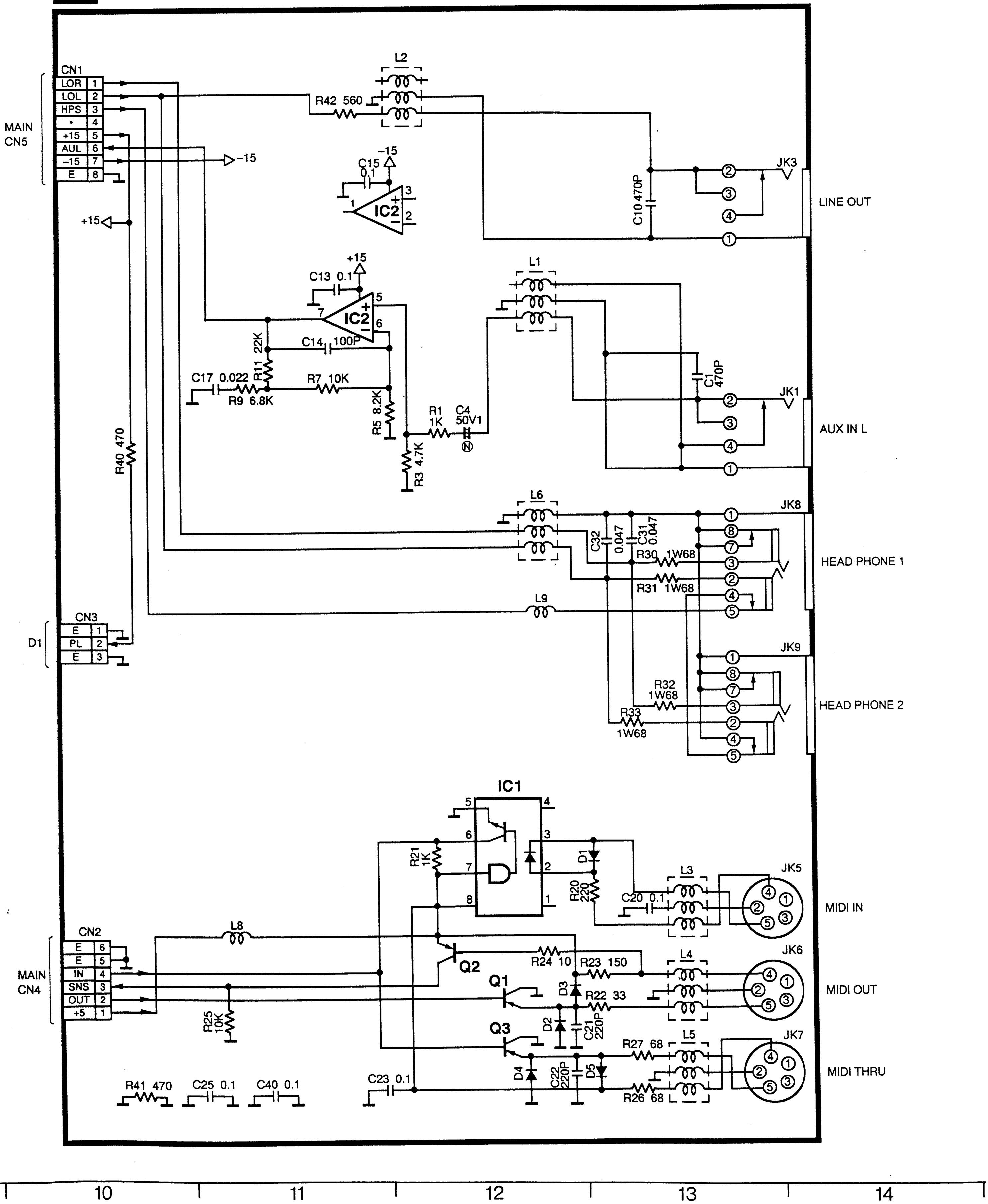

JK3 LINE OUT
JK1 AUX IN
JK7 MIDI THRU
JK6 MIDI OUT
JK5 MIDI IN
JK8 PHONES 1
JK9 PHONES 2
IC1
IC2
CN1
CN2
CN3
Q1
Q2
Q3
D1
D2
D3
D4
D5
W1
W2

JACK

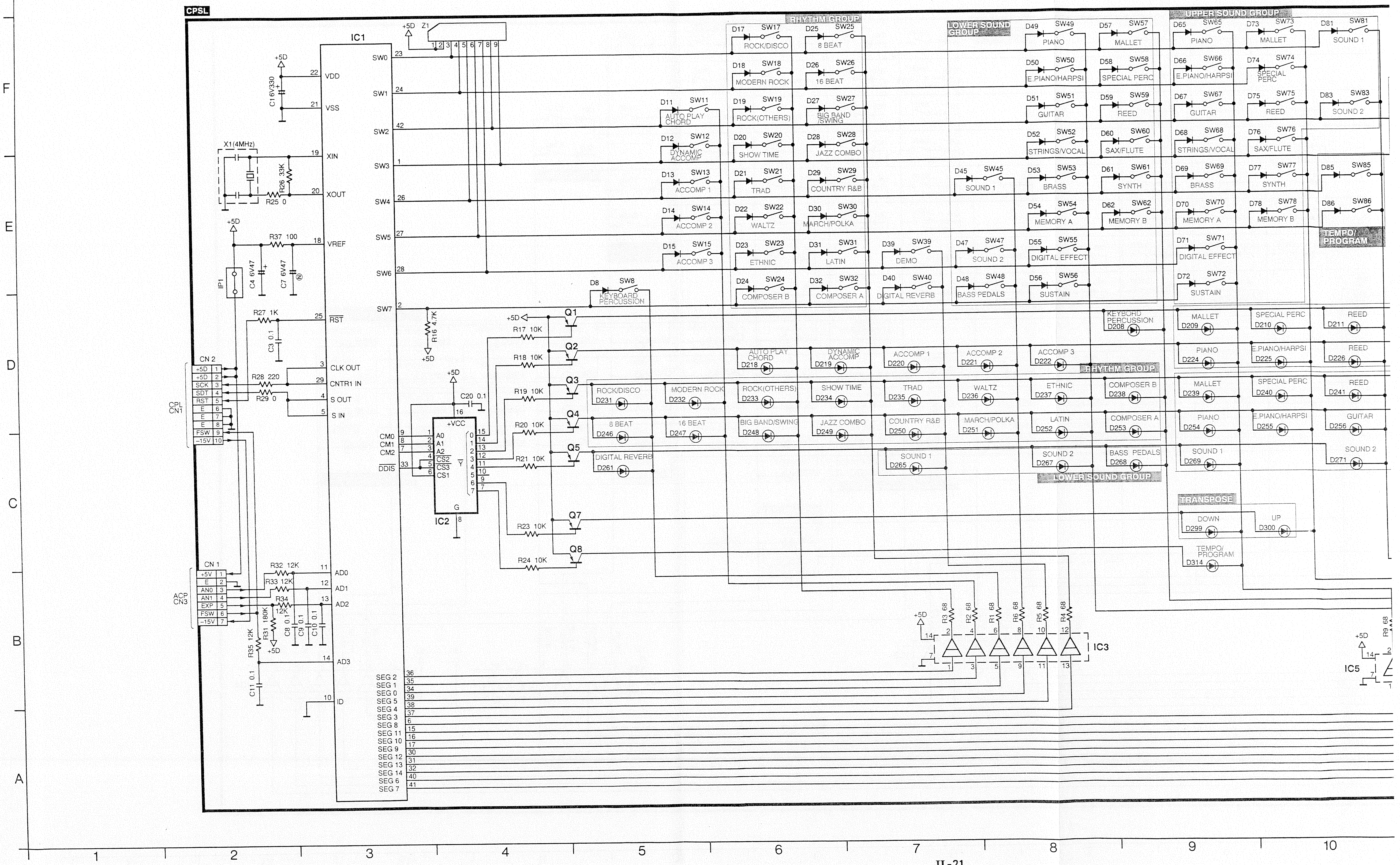
NOTES:

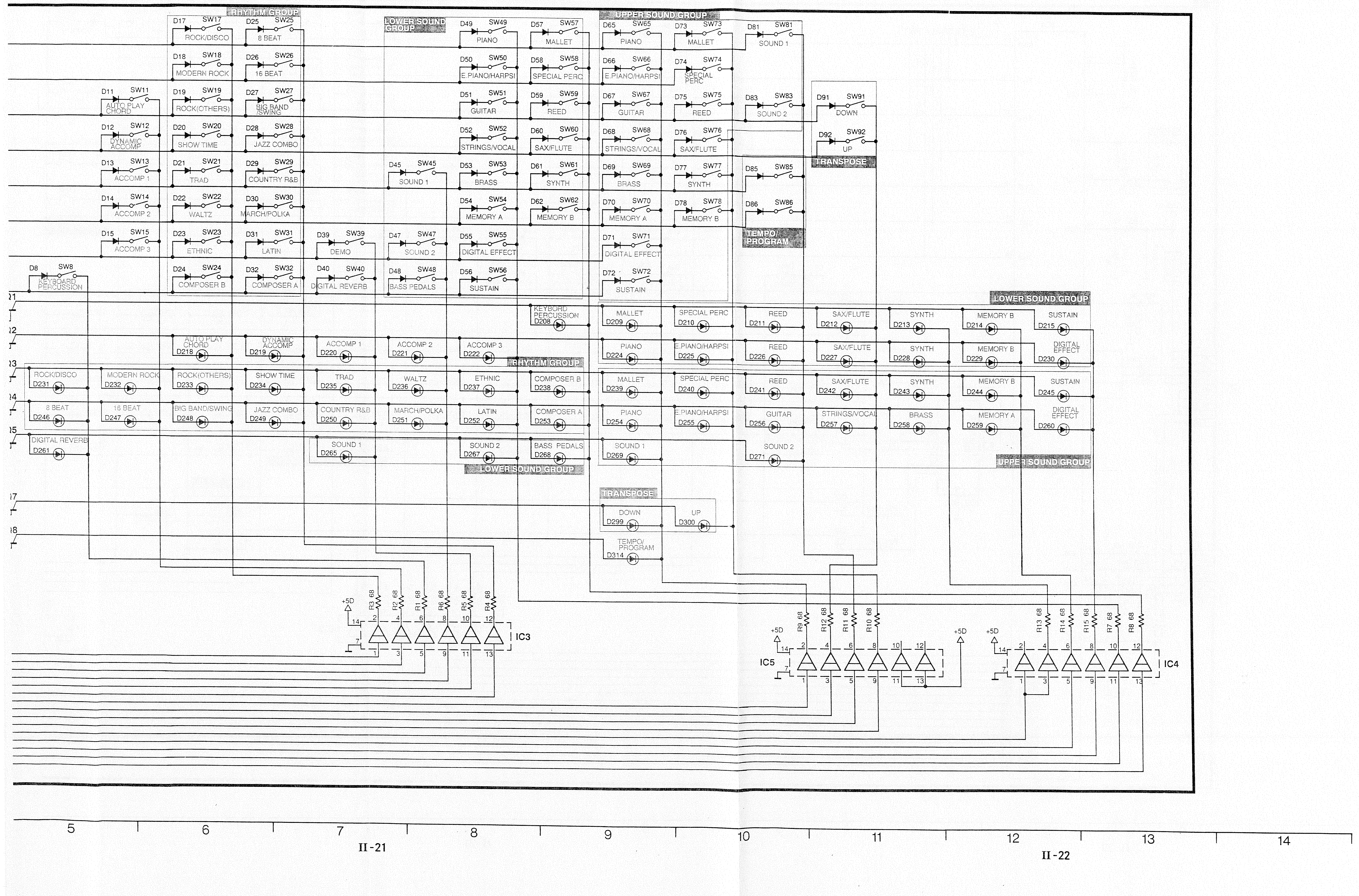
- IC'S
  IC1: QCPL-260L
  IC2: M5218AL
- TRANSISTORS
  Q1~3: 2SA1015-GR
- DIODES
  D1~5: MA165

JACK


CN1
LOR 1
LOL 2
HPS 3
• 4
+15 5
AUL 6
−15 7
E 8
MAIN CN5
−15
+15
L2
R42 560
C15 0.1
IC2
1
2
3
C13 0.1
5
6
7
C14 100P
R11 22K
C17 0.022
R9 6.8K
R7 10K
R5 8.2K
R1 1K
C4 50V1
R3 4.7K
R40 470
L1
C10 470P
JK3
LINE OUT
C1 470P
JK1
AUX IN L
L6
C32 0.047
C31 0.047
R30 1W68
R31 1W68
JK8
HEAD PHONE 1
L9
CN3
E 1
PL 2
E 3
D1
R32 1W68
R33 1W68
JK9
HEAD PHONE 2
① ② ③ ④ ⑤ ⑦ ⑧
IC1
4
5
6
3
7
2
8
1
R21 1K
D1
R20 220
C20 0.1
L3
JK5
MIDI IN
CN2
E 6
E 5
IN 4
SNS 3
OUT 2
+5 1
MAIN CN4
L8
Q2
R24 10
R23 150
L4
JK6
MIDI OUT
Q1
D3
R22 33
R25 10K
D2
C21 220P
Q3
R27 68
L5
JK7
MIDI THRU
D4
C22 220P
D5
R26 68
R41 470
C25 0.1
C40 0.1
C23 0.1
10
11
12
13
14

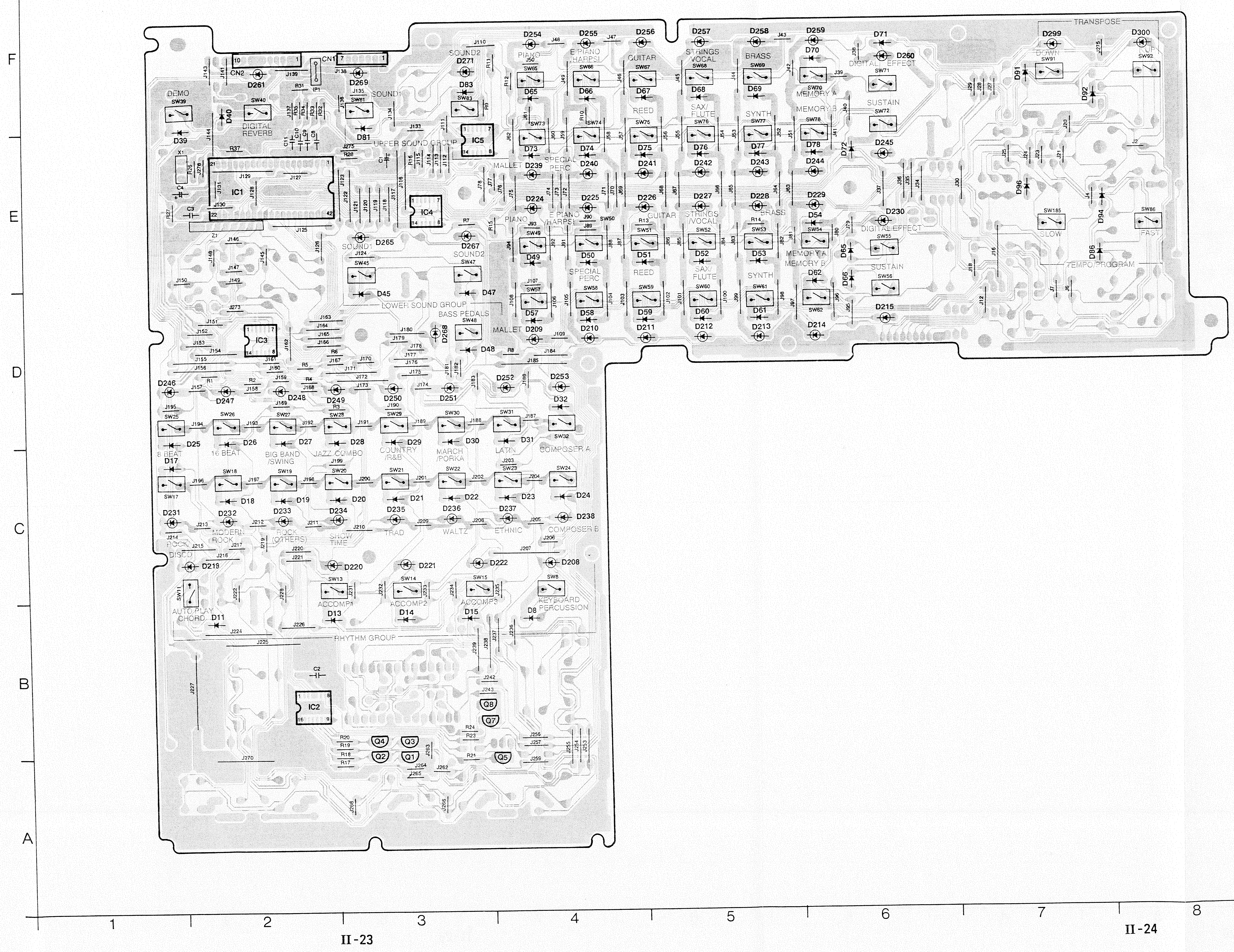
CPSL P.C. Diagram


CPSL
IC1
IC2
IC3
IC5
Z1
+5D
VDD
VSS
XIN
XOUT
VREF
RST
CLK OUT
CNTR1 IN
S OUT
S IN
AD0
AD1
AD2
AD3
ID
SW0
SW1
SW2
SW3
SW4
SW5
SW6
SW7
CM0
CM1
CM2
DDIS
SEG 2
SEG 1
SEG 0
SEG 5
SEG 4
SEG 3
SEG 8
SEG 11
SEG 10
SEG 9
SEG 12
SEG 13
SEG 14
SEG 6
SEG 7
C16V330
X1(4MHz)
R26 33K
R25 0
R37 100
C4 6V47
C7 6V47
IP1
R27 1K
C3 0.1
R28 220
R29 0
R16 4.7K
R17 10K
R18 10K
R19 10K
R20 10K
R21 10K
R23 10K
R24 10K
C20 0.1
Q1
Q2
Q3
Q4
Q5
Q7
Q8
+VCC
A0
A1
A2
CS2
CS3
CS1
G
CN 2
CPL CN1
+5D
SCK
SDT
RST
E
FSW
-15V
CN 1
ACP CN3
+5V
AN0
AN1
EXP
R32 12K
R33 12K
R34 12K
R31 180K
R35 12K
C8 0.1
C9 0.1
C10 0.1
C11 0.1
R3 68
R2 68
R1 68
R6 68
R5 68
R4 68
R9 68
RHYTHM GROUP
LOWER SOUND GROUP
UPPER SOUND GROUP
TEMPO/ PROGRAM
TRANSPOSE
D8 SW8 KEYBOARD PERCUSSION
D11 SW11 AUTO PLAY CHORD
D12 SW12 DYNAMIC ACCOMP
D13 SW13 ACCOMP 1
D14 SW14 ACCOMP 2
D15 SW15 ACCOMP 3
D17 SW17 ROCK/DISCO
D18 SW18 MODERN ROCK
D19 SW19 ROCK(OTHERS)
D20 SW20 SHOW TIME
D21 SW21 TRAD
D22 SW22 WALTZ
D23 SW23 ETHNIC
D24 SW24 COMPOSER B
D25 SW25 8 BEAT
D26 SW26 16 BEAT
D27 SW27 BIG BAND /SWING
D28 SW28 JAZZ COMBO
D29 SW29 COUNTRY R&B
D30 SW30 MARCH/POLKA
D31 SW31 LATIN
D32 SW32 COMPOSER A
D39 SW39 DEMO
D40 SW40 DIGITAL REVERB
D45 SW45 SOUND 1
D47 SW47 SOUND 2
D48 SW48 BASS PEDALS
D49 SW49 PIANO
D50 SW50 E.PIANO/HARPSI
D51 SW51 GUITAR
D52 SW52 STRINGS/VOCAL
D53 SW53 BRASS
D54 SW54 MEMORY A
D55 SW55 DIGITAL EFFECT
D56 SW56 SUSTAIN
D57 SW57 MALLET
D58 SW58 SPECIAL PERC
D59 SW59 REED
D60 SW60 SAX/FLUTE
D61 SW61 SYNTH
D62 SW62 MEMORY B
D65 SW65 PIANO
D66 SW66 E.PIANO/HARPSI
D67 SW67 GUITAR
D68 SW68 STRINGS/VOCAL
D69 SW69 BRASS
D70 SW70 MEMORY A
D71 SW71 DIGITAL EFFECT
D72 SW72 SUSTAIN
D73 SW73 MALLET
D74 SW74 SPECIAL PERC
D75 SW75 REED
D76 SW76 SAX/FLUTE
D77 SW77 SYNTH
D78 SW78 MEMORY B
D81 SW81 SOUND 1
D83 SW83 SOUND 2
D85 SW85
D86 SW86
KEYBORD PERCUSSION D208
MALLET D209
SPECIAL PERC D210
REED D211
AUTO PLAY CHORD D218
DYNAMIC ACCOMP D219
ACCOMP 1 D220
ACCOMP 2 D221
ACCOMP 3 D222
PIANO D224
E.PIANO/HARPSI D225
REED D226
ROCK/DISCO D231
MODERN ROCK D232
ROCK(OTHERS) D233
SHOW TIME D234
TRAD D235
WALTZ D236
ETHNIC D237
COMPOSER B D238
MALLET D239
SPECIAL PERC D240
REED D241
8 BEAT D246
16 BEAT D247
BIG BAND/SWING D248
JAZZ COMBO D249
COUNTRY R&B D250
MARCH/POLKA D251
LATIN D252
COMPOSER A D253
PIANO D254
E.PIANO/HARPSI D255
GUITAR D256
DIGITAL REVERB D261
SOUND 1 D265
SOUND 2 D267
BASS PEDALS D268
SOUND 1 D269
SOUND 2 D271
DOWN D299
UP D300
TEMPO/ PROGRAM D314
A
B
C
D
E
F
1
2
3
4
5
6
7
8
9
10


RHYTHM GROUP
D17 SW17 ROCK/DISCO
D25 SW25 8 BEAT
D18 SW18 MODERN ROCK
D26 SW26 16 BEAT
D19 SW19 ROCK(OTHERS)
D27 SW27 BIG BAND /SWING
D20 SW20 SHOW TIME
D28 SW28 JAZZ COMBO
D21 SW21 TRAD
D29 SW29 COUNTRY R&B
D22 SW22 WALTZ
D30 SW30 MARCH/POLKA
D23 SW23 ETHNIC
D31 SW31 LATIN
D24 SW24 COMPOSER B
D32 SW32 COMPOSER A
D11 SW11 AUTO PLAY CHORD
D12 SW12 DYNAMIC ACCOMP
D13 SW13 ACCOMP 1
D14 SW14 ACCOMP 2
D15 SW15 ACCOMP 3
D8 SW8 KEYBOARD PERCUSSION
D39 SW39 DEMO
D40 SW40 DIGITAL REVERB
LOWER SOUND GROUP
D49 SW49 PIANO
D57 SW57 MALLET
D50 SW50 E.PIANO/HARPSI
D58 SW58 SPECIAL PERC
D51 SW51 GUITAR
D59 SW59 REED
D52 SW52 STRINGS/VOCAL
D60 SW60 SAX/FLUTE
D45 SW45 SOUND 1
D53 SW53 BRASS
D61 SW61 SYNTH
D54 SW54 MEMORY A
D62 SW62 MEMORY B
D47 SW47 SOUND 2
D55 SW55 DIGITAL EFFECT
D48 SW48 BASS PEDALS
D56 SW56 SUSTAIN
UPPER SOUND GROUP
D65 SW65 PIANO
D73 SW73 MALLET
D81 SW81 SOUND 1
D66 SW66 E.PIANO/HARPSI
D74 SW74 SPECIAL PERC
D67 SW67 GUITAR
D75 SW75 REED
D83 SW83 SOUND 2
D68 SW68 STRINGS/VOCAL
D76 SW76 SAX/FLUTE
D69 SW69 BRASS
D77 SW77 SYNTH
D85 SW85
D70 SW70 MEMORY A
D78 SW78 MEMORY B
D86 SW86
TEMPO/ PROGRAM
D71 SW71 DIGITAL EFFECT
D72 SW72 SUSTAIN
D91 SW91 DOWN
D92 SW92 UP
TRANSPOSE
KEYBORD PERCUSSION D208
MALLET D209
SPECIAL PERC D210
REED D211
SAX/FLUTE D212
SYNTH D213
MEMORY B D214
SUSTAIN D215
LOWER SOUND GROUP
AUTO PLAY CHORD D218
DYNAMIC ACCOMP D219
ACCOMP 1 D220
ACCOMP 2 D221
ACCOMP 3 D222
RHYTHM GROUP
PIANO D224
E.PIANO/HARPSI D225
REED D226
SAX/FLUTE D227
SYNTH D228
MEMORY B D229
DIGITAL EFFECT D230
ROCK/DISCO D231
MODERN ROCK D232
ROCK(OTHERS) D233
SHOW TIME D234
TRAD D235
WALTZ D236
ETHNIC D237
COMPOSER B D238
MALLET D239
SPECIAL PERC D240
REED D241
SAX/FLUTE D242
SYNTH D243
MEMORY B D244
SUSTAIN D245
8 BEAT D246
16 BEAT D247
BIG BAND/SWING D248
JAZZ COMBO D249
COUNTRY R&B D250
MARCH/POLKA D251
LATIN D252
COMPOSER A D253
PIANO D254
E.PIANO/HARPSI D255
GUITAR D256
STRINGS/VOCAL D257
BRASS D258
MEMORY A D259
DIGITAL EFFECT D260
DIGITAL REVERB D261
SOUND 1 D265
SOUND 2 D267
BASS PEDALS D268
LOWER SOUND GROUP
SOUND 1 D269
SOUND 2 D271
UPPER SOUND GROUP
TRANSPOSE
DOWN D299
UP D300
TEMPO/ PROGRAM D314
+5D
R3 68 R2 68 R1 68 R6 68 R5 68 R4 68
IC3
R9 68 R12 68 R11 68 R10 68
IC5
R13 68 R14 68 R15 68 R7 68 R8 68
IC4
2 4 6 8 10 12 14 7
1 3 5 9 11 13
5 6 7 8 9 10 11 12 13 14

CPSL P.C. Board

CPSL (SXPG221221A)


F
E
D
C
B
A
1
2
3
4
5
6
7
CN1
CN2
IC1
IC2
IC3
IC4
IC5
Q1
Q2
Q3
Q4
Q5
Q7
Q8
DEMO
DIGITAL REVERB
SOUND1
SOUND2
UPPER SOUND GROUP
LOWER SOUND GROUP
BASS PEDALS
PIANO
E.PIANO /HARPSI
GUITAR
STRINGS /VOCAL
BRASS
DIGITAL EFFECT
MALLET
SPECIAL PERC
REED
SAX/ FLUTE
SYNTH
MEMORY A
MEMORY B
SUSTAIN
TRANSPOSE
DOWN
UP
SLOW
FAST
TEMPO/PROGRAM
8 BEAT
16 BEAT
BIG BAND /SWING
JAZZ COMBO
COUNTRY /R&B
MARCH /PORKA
LATIN
COMPOSER A
ROCK
MODERN ROCK
ROCK (OTHERS)
SHOW TIME
TRAD
WALTZ
ETHNIC
COMPOSER B
DISCO
AUTO PLAY CHORD
ACCOMP1
ACCOMP2
ACCOMP3
KEYBOARD PERCUSSION
RHYTHM GROUP

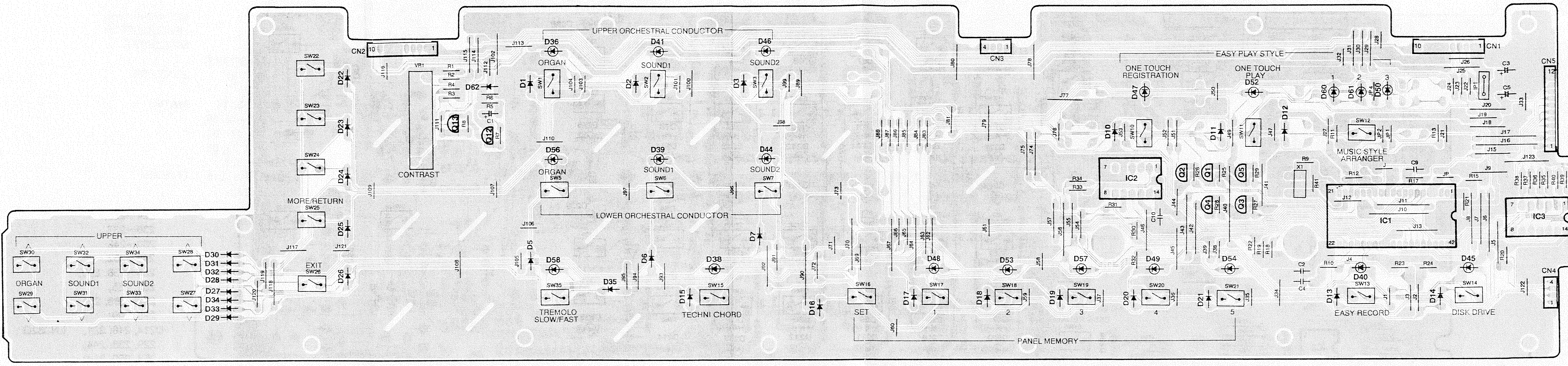
CPSL

NOTES:

- IC'S
  - IC1: M37471M2196S
  - IC2: H74LS138FPTR
  - IC3~5: M74LS07FP
- TRANSISTORS
  - Q1~5, 7, 8: 2SA830SB
- DIODES
  - D8, 11, 13, 14, 15, 17~32, 39, 40, 45, 47~62, 65~78, 83, 85, 86, 91, 92: MA165
  - D208~213, 215, 220, 222, 224~228, 230~237, 239~243, 245~252, 254~258, 260, 261, 265, 267~269, 271, 299, 300: LN282R
  - D214, 218, 221, 229, 238, 244, 253, 259, 314: LN382G

CPR/CN P.C. Board

CPR (SXPG221321A)

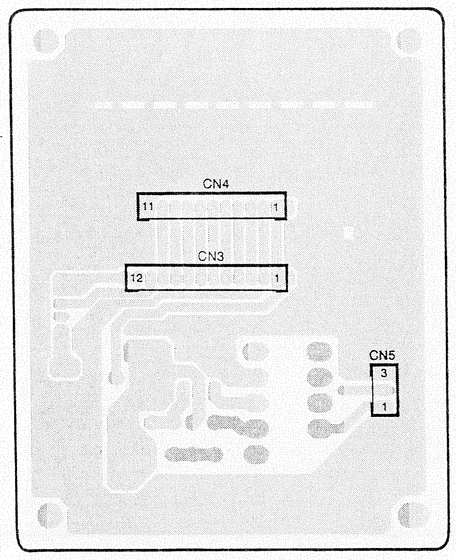

CN2
UPPER ORCHESTRAL CONDUCTOR
D36
ORGAN
D41
SOUND1
D46
SOUND2
CN3
EASY PLAY STYLE
CN1
CN5
ONE TOUCH REGISTRATION
ONE TOUCH PLAY
D47
D52
D60
D61
D50
VR1
CONTRAST
D62
Q12
Q13
D56
ORGAN
D39
SOUND1
D44
SOUND2
MUSIC STYLE ARRANGER
IC2
IC1
IC3
LOWER ORCHESTRAL CONDUCTOR
MORE/RETURN
EXIT
UPPER
ORGAN
SOUND1
SOUND2
D30
D31
D32
D28
D27
D34
D33
D29
D58
TREMOLO SLOW/FAST
D35
D38
TECHNI CHORD
D48
D53
D57
D49
D54
D45
D40
SET
1
2
3
4
5
PANEL MEMORY
EASY RECORD
DISK DRIVE
CN4

CPR

NOTES:

• IC'S	
IC1:	M37471M2196S
IC2, 3:	HD74LS07P
• TRANSISTORS	
Q1～5:	2SA830SB
Q12:	2SA1015-GR
Q13:	2SC1815GR
• DIODES	
D1～3, 5～7, 10～35, 62:	MA165
D36, 38, 39, 41, 44, 46, 50, 56, 60, 61:	LN282R
D40, 42, 44, 45, 47～49, 52～54, 57:	LN382G

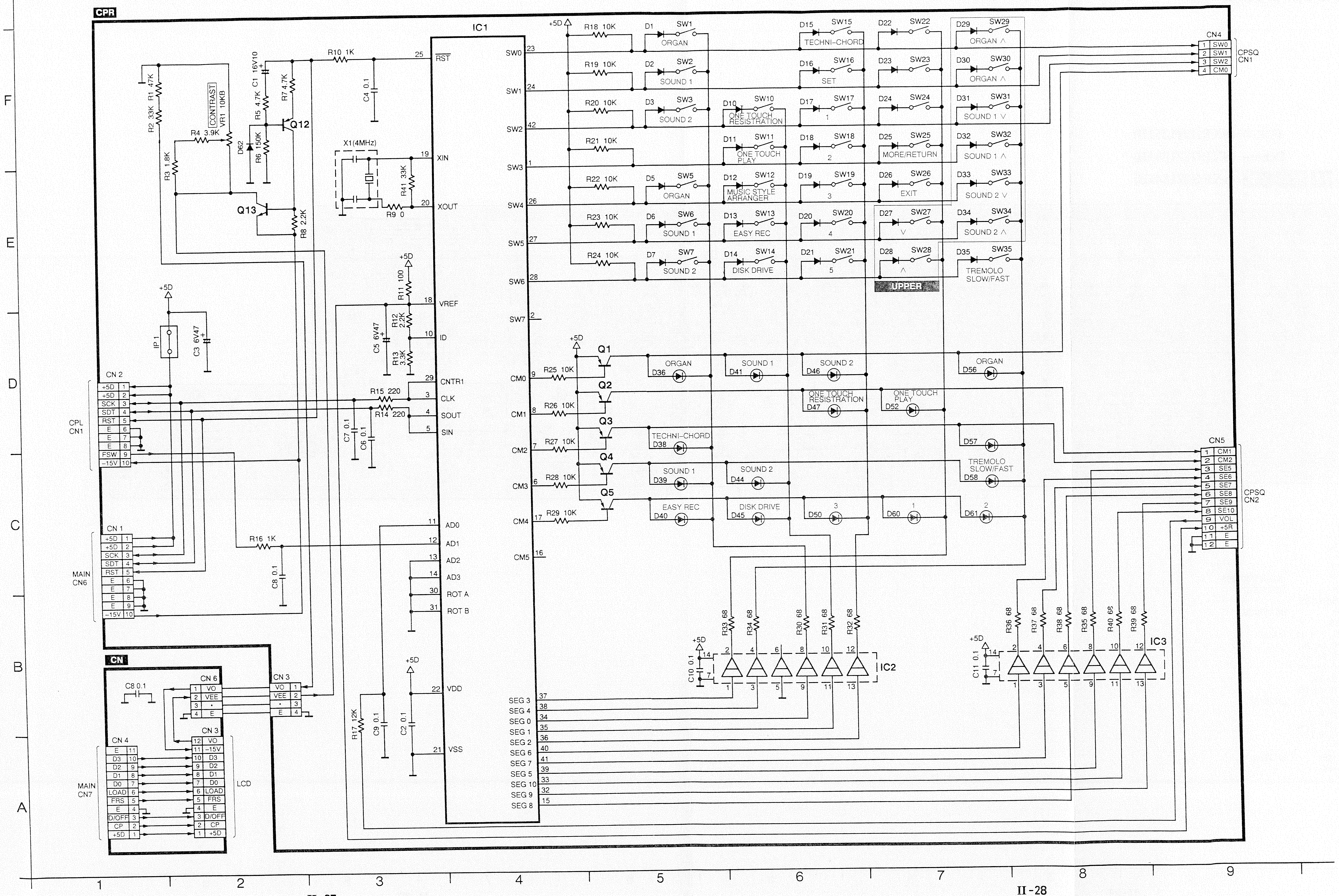
CN (SXPG221321D)


CN4
11
1
CN3
12
1
CN5
3
1

F
E
D
C
B
A

1 2 3 4 5 6 7 8 9

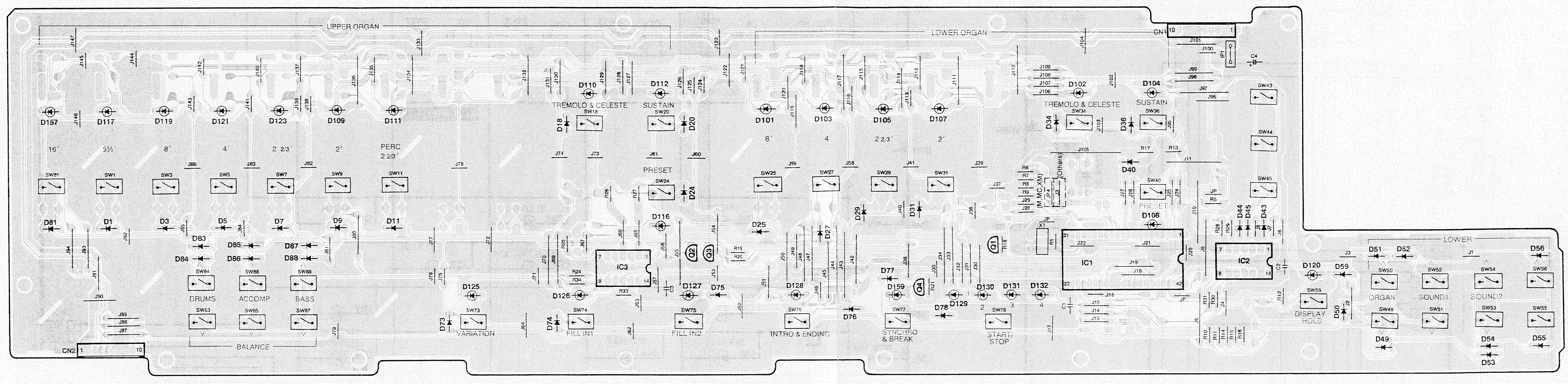
CPR/CN P.C. Diagram



CPR
CN
IC1
IC2
IC3
RST
XIN
XOUT
VREF
ID
CNTR1
CLK
SOUT
SIN
AD0
AD1
AD2
AD3
ROT A
ROT B
VDD
VSS
SW0
SW1
SW2
SW3
SW4
SW5
SW6
SW7
CM0
CM1
CM2
CM3
CM4
CM5
SEG 3
SEG 4
SEG 0
SEG 1
SEG 2
SEG 6
SEG 7
SEG 5
SEG 10
SEG 9
SEG 8
+5D
R1 47K
R2 33K
R3 1.8K
R4 3.9K
CONTRAST VR1 10KB
R5 4.7K
R6 150K
D62
C1 16V10
R7 4.7K
Q12
Q13
R8 2.2K
R10 1K
C4 0.1
X1(4MHz)
R41 33K
R9 0
R11 100
R12 2.2K
R13 3.3K
C5 6V47
R15 220
R14 220
C7 0.1
C6 0.1
R16 1K
C8 0.1
R17 12K
C9 0.1
C2 0.1
IP 1
C3 6V47
CN 2
CPL CN1
+5D
SCK
SDT
RST
E
FSW
−15V
CN 1
MAIN CN6
CN 6
CN 3
CN 4
MAIN CN7
LCD
VO
VEE
D3
D2
D1
D0
LOAD
FRS
D/OFF
CP
C8 0.1
R18 10K
R19 10K
R20 10K
R21 10K
R22 10K
R23 10K
R24 10K
D1 SW1 ORGAN
D2 SW2 SOUND 1
D3 SW3 SOUND 2
D5 SW5 ORGAN
D6 SW6 SOUND 1
D7 SW7 SOUND 2
D10 SW10 ONE TOUCH RESISTRATION
D11 SW11 ONE TOUCH PLAY
D12 SW12 MUSIC STYLE ARRANGER
D13 SW13 EASY REC
D14 SW14 DISK DRIVE
D15 SW15 TECHNI–CHORD
D16 SW16 SET
D17 SW17 1
D18 SW18 2
D19 SW19 3
D20 SW20 4
D21 SW21 5
D22 SW22
D23 SW23
D24 SW24
D25 SW25 MORE/RETURN
D26 SW26 EXIT
D27 SW27 ∨
D28 SW28 ∧
UPPER
D29 SW29 ORGAN ∧
D30 SW30 ORGAN ∧
D31 SW31 SOUND 1 ∨
D32 SW32 SOUND 1 ∧
D33 SW33 SOUND 2 ∨
D34 SW34 SOUND 2 ∧
D35 SW35 TREMOLO SLOW/FAST
CN4
CPSQ CN1
SW0
SW1
SW2
CM0
Q1
Q2
Q3
Q4
Q5
R25 10K
R26 10K
R27 10K
R28 10K
R29 10K
ORGAN D36
SOUND 1 D41
SOUND 2 D46
ORGAN D56
ONE TOUCH RESISTRATION D47
ONE TOUCH PLAY D52
TECHNI–CHORD D38
D57
TREMOLO SLOW/FAST D58
SOUND 1 D39
SOUND 2 D44
EASY REC D40
DISK DRIVE D45
3 D50
1 D60
2 D61
CN5
CPSQ CN2
CM1
CM2
SE5
SE6
SE7
SE8
SE9
SE10
VOL
+5R
R33 68
R34 68
R30 68
R31 68
R32 68
R36 68
R37 68
R38 68
R35 68
R40 68
R39 68
C10 0.1
C11 0.1
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9

CPL P.C. Board

日本向 (SXPG221351B)
Others (SXPG221331B)
CPL **M** **MC** **XM** (SXPG221341B)


UPPER ORGAN
LOWER ORGAN
CN1
CN2
16'
5⅓'
8'
4'
2 2/3'
2'
PERC
2 2/3'
TREMOLO & CELESTE
SUSTAIN
PRESET
8'
4'
2 2/3'
2'
TREMOLO & CELESTE
SUSTAIN
PRESET
(M,MC,XM)
(Others)
IC1
IC2
IC3
DRUMS
ACCOMP
BASS
BALANCE
VARIATION
FILL IN1
FILL IN2
INTRO & ENDING
SYNCHRO & BREAK
START/STOP
DISPLAY HOLD
LOWER
ORGAN
SOUND1
SOUND2
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9

CPL

NOTES:

- IC'S

IC1:	M37471M2196S
IC2, 3:	HD74LS07P

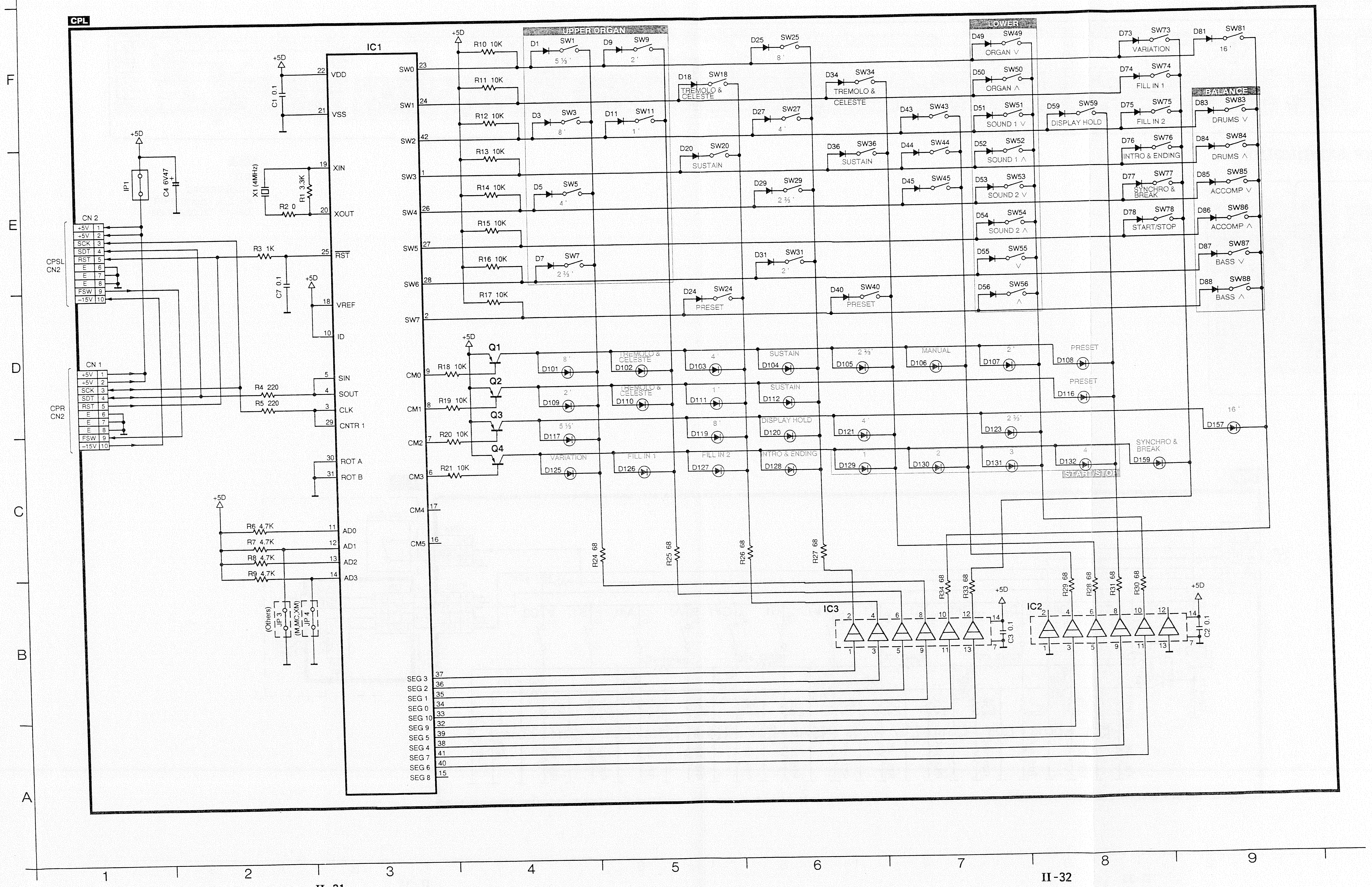
- TRANSISTORS

Q1～4:	2SA830SB

- DIODES

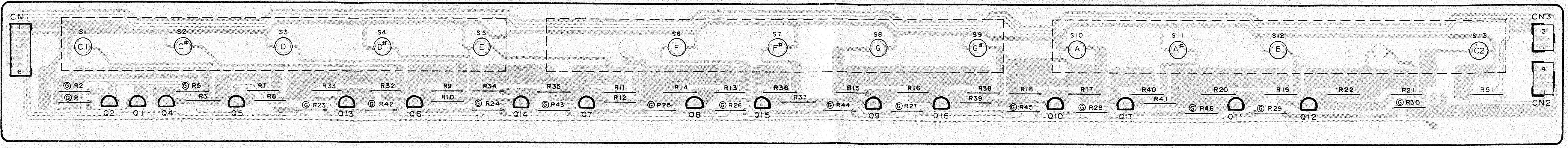
D1, 3, 5, 7, 9, 11, 18, 20, 24, 25, 27, 29, 31, 34, 36, 40, 43～45, 49～56, 59, 73～78, 81, 83:	MA165
D101～105, 107, 119～112, 117, 119～121, 123, 125～129, 157, 159:	LN282R
D108, 116, 130～132:	LN382G

CPL P.C. Diagram

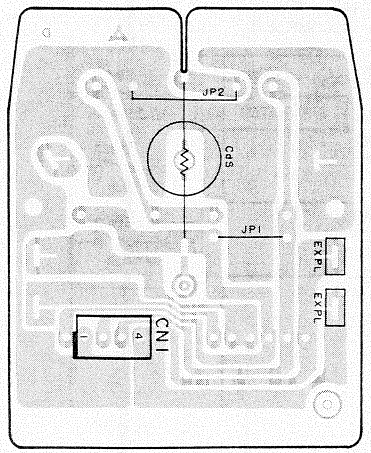

CPL
IC1
VDD
VSS
XIN
XOUT
RST
VREF
ID
SIN
SOUT
CLK
CNTR 1
ROT A
ROT B
AD0
AD1
AD2
AD3
SW0
SW1
SW2
SW3
SW4
SW5
SW6
SW7
CM0
CM1
CM2
CM3
CM4
CM5
SEG 3
SEG 2
SEG 1
SEG 0
SEG 10
SEG 9
SEG 5
SEG 4
SEG 7
SEG 6
SEG 8
+5D
C1 0.1
C4 6V47
IP1
X1 (4MHz)
R1 3.3K
R2 0
R3 1K
C7 0.1
R4 220
R5 220
R6 4.7K
R7 4.7K
R8 4.7K
R9 4.7K
(Others) JP 3
(M,MC,XM) JP 4
CN 2
CPSL CN2
CN 1
CPR CN2
+5V
SCK
SDT
RST
E
FSW
−15V
R10 10K
R11 10K
R12 10K
R13 10K
R14 10K
R15 10K
R16 10K
R17 10K
R18 10K
R19 10K
R20 10K
R21 10K
Q1
Q2
Q3
Q4
UPPER ORGAN
D1 SW1 5 ⅓'
D9 SW9 2'
D3 SW3 8'
D11 SW11 1'
D5 SW5 4'
D7 SW7 2 ⅔'
D18 SW18 TREMOLO & CELESTE
D20 SW20 SUSTAIN
D24 SW24 PRESET
D25 SW25 8'
D27 SW27 4'
D29 SW29 2 ⅔'
D31 SW31 2'
D34 SW34 TREMOLO & CELESTE
D36 SW36 SUSTAIN
D40 SW40 PRESET
D43 SW43
D44 SW44
D45 SW45
LOWER
D49 SW49 ORGAN ∨
D50 SW50 ORGAN ∧
D51 SW51 SOUND 1 ∨
D52 SW52 SOUND 1 ∧
D53 SW53 SOUND 2 ∨
D54 SW54 SOUND 2 ∧
D55 SW55 ∨
D56 SW56 ∧
D59 SW59 DISPLAY HOLD
D73 SW73 VARIATION
D74 SW74 FILL IN 1
D75 SW75 FILL IN 2
D76 SW76 INTRO & ENDING
D77 SW77 SYNCHRO & BREAK
D78 SW78 START/STOP
D81 SW81 16'
BALANCE
D83 SW83 DRUMS ∨
D84 SW84 DRUMS ∧
D85 SW85 ACCOMP ∨
D86 SW86 ACCOMP ∧
D87 SW87 BASS ∨
D88 SW88 BASS ∧
D101 8'
D102 TREMOLO & CELESTE
D103 4'
D104 SUSTAIN
D105 2 ⅔'
D106 MANUAL
D107 2'
D108 PRESET
D109 2'
D110 TREMOLO & CELESTE
D111 1'
D112 SUSTAIN
D116 PRESET
D117 5 ⅓'
D119 8'
D120 DISPLAY HOLD
D121 4'
D123 2 ⅔'
D157 16'
D125 VARIATION
D126 FILL IN 1
D127 FILL IN 2
D128 INTRO & ENDING
D129 1
D130 2
D131 3
D132 4
START/STOP
D159 SYNCHRO & BREAK
R24 68
R25 68
R26 68
R27 68
R34 68
R33 68
R29 68
R28 68
R31 68
R30 68
IC3
IC2
C3 0.1
C2 0.1
A
B
C
D
E
F
1
2
3
4
5
6
7
8
9

PKB/EXP

PKB (SXPG145111)


CN1
S1 C1
S2 C#
S3 D
S4 D#
S5 E
S6 F
S7 F#
S8 G
S9 G#
S10 A
S11 A#
S12 B
S13 C2
CN3
CN2
Q1 Q2 Q4 Q5 Q6 Q7 Q8 Q9 Q10 Q11 Q12 Q13 Q14 Q15 Q16 Q17
R1 R2 R3 R5 R7 R8 R9 R10 R11 R12 R13 R14 R15 R16 R17 R18 R19 R20 R21 R22 R23 R24 R25 R26 R27 R28 R29 R30 R32 R33 R34 R35 R36 R37 R38 R39 R40 R41 R42 R43 R44 R45 R46 R51

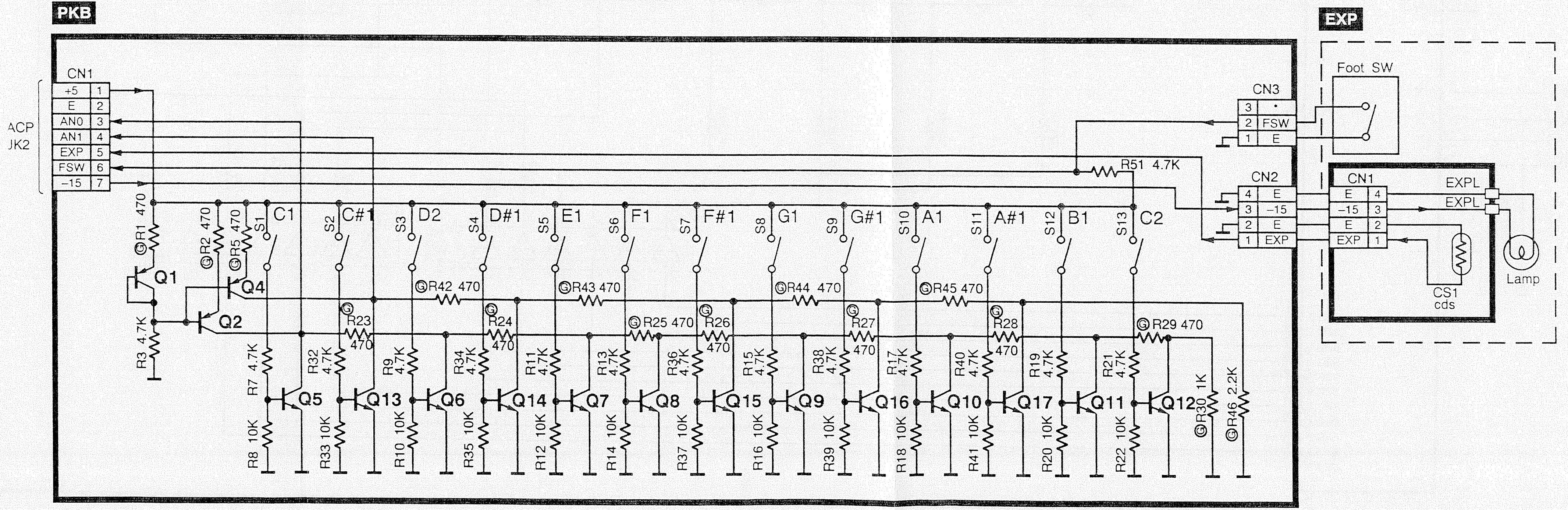
EXP (SXPG103211D)


JP2
cds
JP1
EXPL
EXPL
CN1

PKB

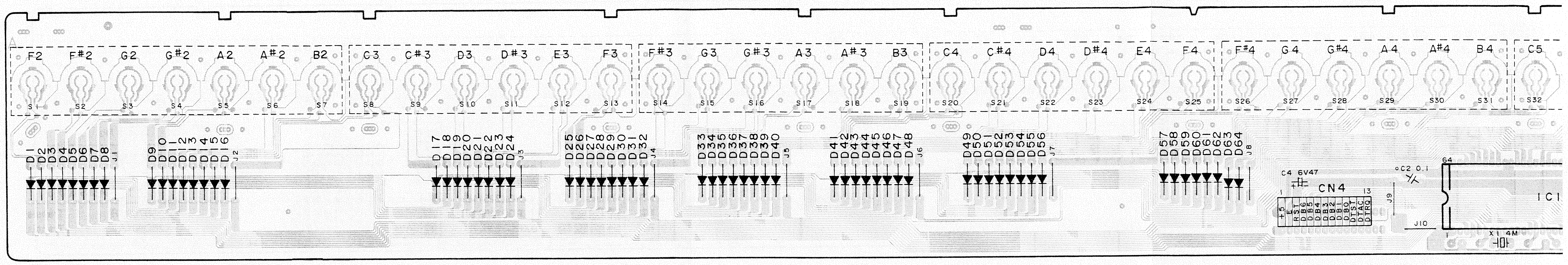
NOTE:

- TRANSISTORS
  Q1, 2, 4: 2SA1015-GR
  Q5~17: 2SC2320LFG

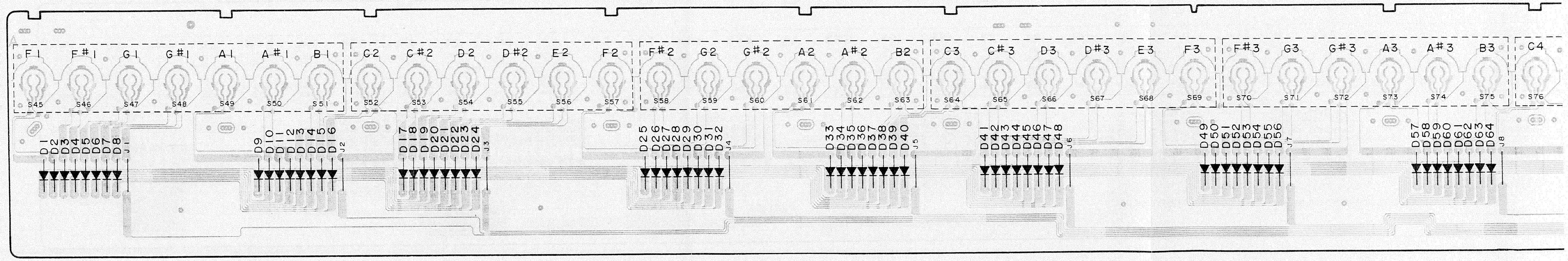

PKB
CN1
+5 1
E 2
AN0 3
AN1 4
EXP 5
FSW 6
-15 7
ACP JK2
R1 470
R2 470
R5 470
Q1
Q2
Q4
R3 4.7K
R7 4.7K
R8 10K
S1 C1
S2 C#1
S3 D2
S4 D#1
S5 E1
S6 F1
S7 F#1
S8 G1
S9 G#1
S10 A1
S11 A#1
S12 B1
S13 C2
R42 470
R43 470
R44 470
R45 470
R23 470
R24 470
R25 470
R26 470
R27 470
R28 470
R29 470
R32 4.7K
R9 4.7K
R34 4.7K
R11 4.7K
R13 4.7K
R36 4.7K
R15 4.7K
R38 4.7K
R17 4.7K
R40 4.7K
R19 4.7K
R21 4.7K
Q5 Q13 Q6 Q14 Q7 Q8 Q15 Q9 Q16 Q10 Q17 Q11 Q12
R33 10K
R10 10K
R35 10K
R12 10K
R14 10K
R37 10K
R16 10K
R39 10K
R18 10K
R41 10K
R20 10K
R22 10K
R30 1K
R46 2.2K
R51 4.7K
CN3
3 •
2 FSW
1 E
CN2
4 E
3 -15
2 E
1 EXP
EXP
Foot SW
CN1
E 4
-15 3
E 2
EXP 1
EXPL
EXPL
CS1 cds
Lamp

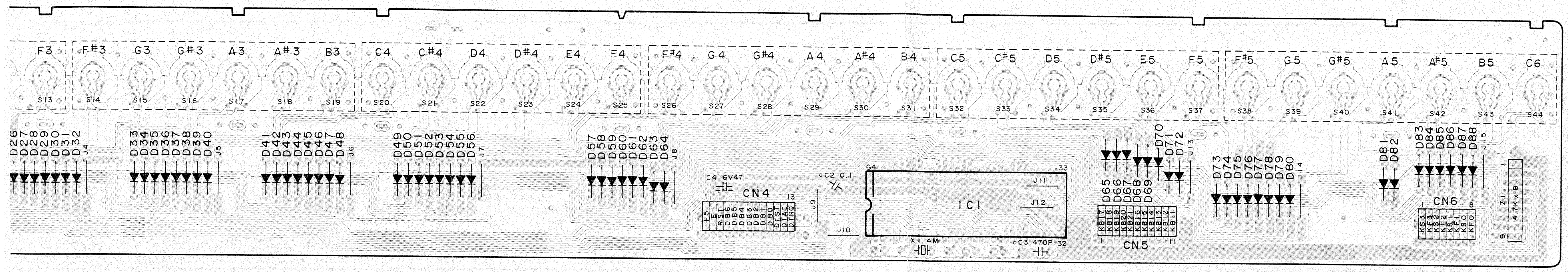
MKB P.C. Board

MKBU (SXPG207611A)


F2
F#2
G2
G#2
A2
A#2
B2
C3
C#3
D3
D#3
E3
F3
F#3
G3
G#3
A3
A#3
B3
C4
C#4
D4
D#4
E4
F4
F#4
G4
G#4
A4
A#4
B4
C5
S1 – S32
D1 – D64
J1 J2 J3 J4 J5 J6 J7 J8 J9 J10
C4 6V47
CN4
1
13
+5
E
RST
DB6
DB5
DB4
DB3
DB2
DB1
DB0
DTST
DTAC
DTRQ
C2 0.1
64
IC1
X1 4M

MKBL (SXPG207611B)

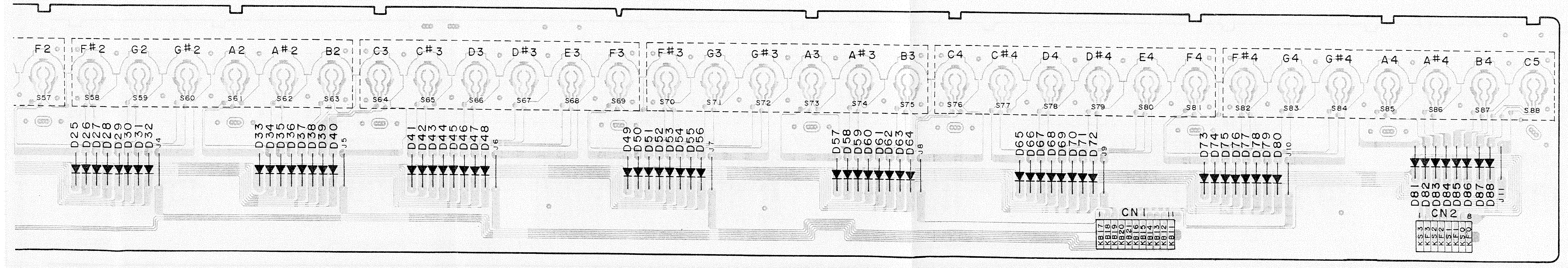

F1
F#1
G1
G#1
A1
A#1
B1
C2
C#2
D2
D#2
E2
F2
F#2
G2
G#2
A2
A#2
B2
C3
C#3
D3
D#3
E3
F3
F#3
G3
G#3
A3
A#3
B3
C4
S45 – S76
D1 – D64
J1 J2 J3 J4 J5 J6 J7 J8


F3
F#3
G3
G#3
A3
A#3
B3
C4
C#4
D4
D#4
E4
F4
F#4
G4
G#4
A4
A#4
B4
C5
C#5
D5
D#5
E5
F5
F#5
G5
G#5
A5
A#5
B5
C6
S13 … S44
D26 … D88
J4 … J15
C4 6V47
CN4
+5 E RS DB6 DB5 DB4 DB3 DB2 DB1 DB0 DTST DTAC DTRQ
C2 0.1
IC1
64
33
J9
J10
J11
J12
X1 4M
C3 470P
32
CN5
KB17 KB18 KB19 KB20 KB21 KB16 KB15 KB14 KB13 KB12 KB11
CN6
KS3 KF3 KS2 KF2 KS1 KF1 KS0 KF0
Z1 4.7K×8

MKBU

NOTES:

- IC'S
  IC1: . MN50020PGV
- DIODES
  D1~88: MA162A


F2
F#2
G2
G#2
A2
A#2
B2
C3
C#3
D3
D#3
E3
F3
F#3
G3
G#3
A3
A#3
B3
C4
C#4
D4
D#4
E4
F4
F#4
G4
G#4
A4
A#4
B4
C5
S57 … S88
D25 … D88
J4 … J11
CN1
KB17 KB18 KB19 KB20 KB21 KB16 KB15 KB14 KB13 KB12 KB11
CN2
KS3 KF3 KS2 KF2 KS1 KF1 KS0 KF0

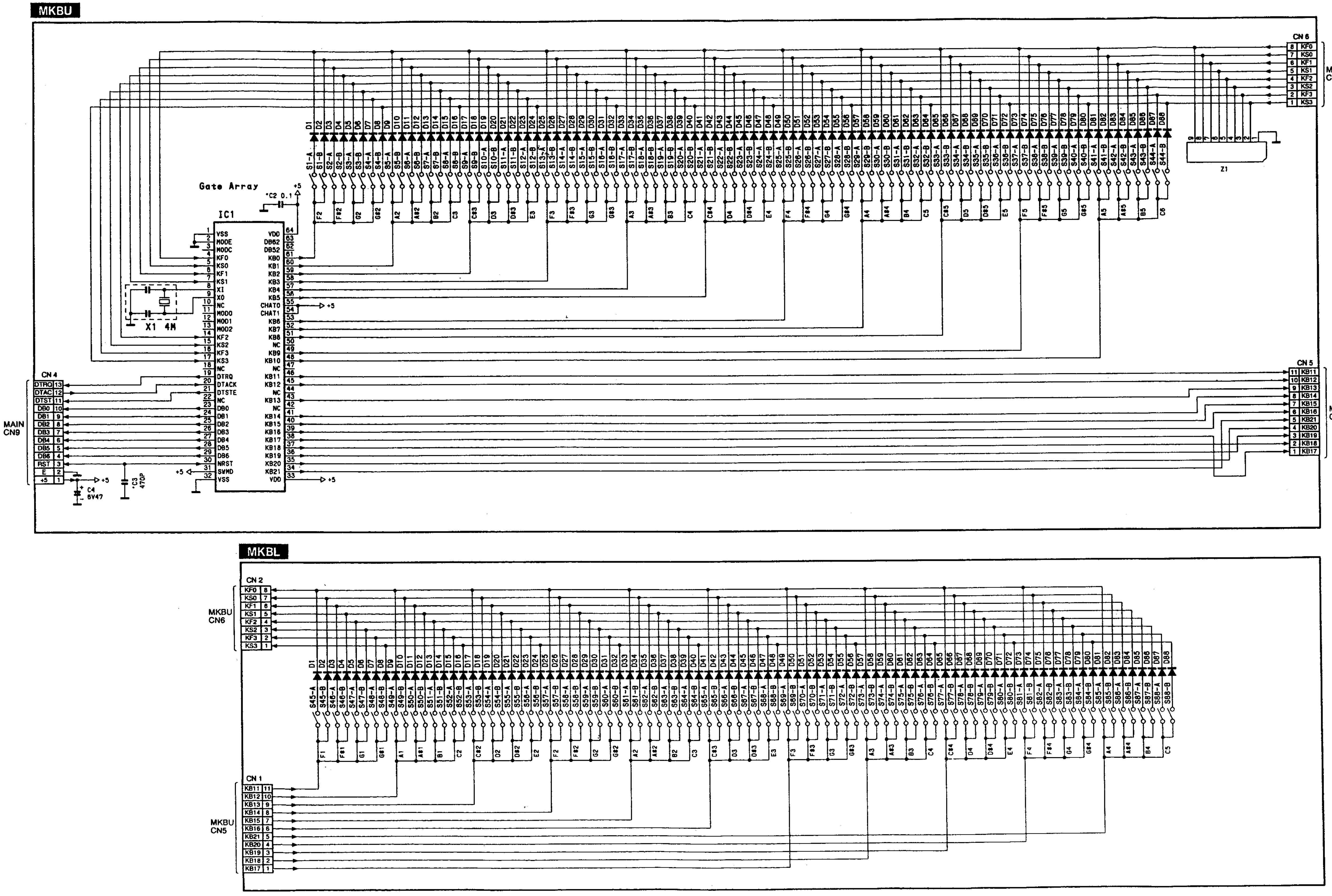
MKBL

NOTE:

- DIODES
  D89~176: MA162A

5 6 7 8 9 10 11 12 13 14

MKB P.C. Diagram


MKBU
MKBL
Gate Array
IC1
*C2 0.1
+5
VSS
MODE
MODC
KF0
KS0
KF1
KS1
XI
XO
NC
MOD0
MOD1
MOD2
KF2
KS2
KF3
KS3
DTRQ
DTACK
DTSTE
DB0
DB1
DB2
DB3
DB4
DB5
DB6
NRST
SVMD
VDD
DB62
DB52
KB0
KB1
KB2
KB3
KB4
KB5
CHATO
CHAT1
KB6
KB7
KB8
KB9
KB10
KB11
KB12
KB13
KB14
KB15
KB16
KB17
KB18
KB19
KB20
KB21
X1 4M
CN 4
MAIN CN9
DTRQ
DTAC
DTST
RST
E
+5
C4 6V47
*C3 470P
CN 6
MKBL CN2
CN 5
MKBL CN1
Z1
D1–D88
S1-A–S44-B
F2 F#2 G2 G#2 A2 A#2 B2 C3 C#3 D3 D#3 E3 F3 F#3 G3 G#3 A3 A#3 B3 C4 C#4 D4 D#4 E4 F4 F#4 G4 G#4 A4 A#4 B4 C5 C#5 D5 D#5 E5 F5 F#5 G5 G#5 A5 A#5 B5 C6
CN 2
MKBU CN6
CN 1
MKBU CN5
S45-A–S88-B
F1 F#1 G1 G#1 A1 A#1 B1 C2 C#2 D2 D#2 E2 F2 F#2 G2 G#2 A2 A#2 B2 C3 C#3 D3 D#3 E3 F3 F#3 G3 G#3 A3 A#3 B3 C4 C#4 D4 D#4 E4 F4 F#4 G4 G#4 A4 A#4 B4 C5

REPLACEMENT PARTS LIST……P.C.B. and Wiring Parts

Notes:

1. The marking (RTL) indicates that the Retention Time is limited for this item. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retension period of availability is dependant on the type of assembly, and in accordance with the laws governing part and product retention.
   After the end of this period, the assembly will no longer be available.
2. Important safety notice
   Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
3. The "S" mark is service standard parts and may differ from production parts.
4. ○ mark are new parts.
5. For part No. with area mark, check the area when placing an order.

■ PRINTED CIRCUIT BOARD

	RTL	Area	Part No.	Description	P/S
○	RTL		SXPG221121	MAIN	1
○	RTL	Others	SXPG2170121	AS	1
○	RTL	M MC XM	SXPG2170131	AS	1
○	RTL	Others	SXPG222511B	ACP	1
○	RTL	M MC XM	SXPG222521B	ACP	1
○	RTL	X XD XT XS	SXPG222531B	ACP	1
○	RTL	XR	SXPG222561B	ACP	1
○	RTL	XL	SXPG222551B	ACP	1
○	RTL		SXPG221321A	CPR	1
○	RTL	Others	SXPG221331B	CPL	1
○	RTL	M MC XM	SXPG221341B	CPL	1
○	RTL		SXPG221221A	CPSL	1
○	RTL		SXPG222511A	JACK	1
○	RTL		SXPG221321D	CN	1
○	RTL		SXPG221211B	CPSQ	1
	RTL		SXPG207611B	MKBL	1
	RTL		SXPG207611A	MKBU	1
	RTL		SXPG145111	PKB	1
	RTL		SXPG103211	EXP	1
○			EDMMPJ2G20	LCD	1

MAIN MAIN CIRCUIT

	Ref. No.	Part No.	Description	P/S
	INTEGRATED CIRCUITS			
	IC1	D70236AGD10	Gate Array	1
	IC2	D65046GD188	Gate Array	1
	IC3	TC25540AF006	Tone Generator LSI	1
	IC5	SED1330FBA	LCD Controller	1
○	IC6	LH5P832N-10		1
	IC7	D72068GF-3B9	Floppy Disk Controller	1
	IC9	D6383GF-3B9	Digital Signal Processor	1
○	IC13	M511664-80JS		1
	IC14	D74HC244GS	3 State Buffers	1
○	IC15	QSIGCEA3AX	4M bit Programmed ROM	1
	IC15-1	[HN27C4096G10	[Blank ROM]	1
○	IC17	QSIGCEA3CX	4M bit Programmed ROM	1
○	IC17-1	[HN27C4096G1	[Blank ROM]	1
○	IC18	QSIGH3C08E64	8M bit Program ROM	1
	IC20	M5M44170AJ8S	4M bit Dinamic RAM	1
○	IC22	LH52B256N7LL		1
○	IC23	QSIGH3C16DD9	16M bit Wave ROM	1
○	IC24	QSIGH3C08E61	8M bit Wave ROM	1
	IC40	PCM69AU	D-A Converter	1
	IC48	D74HC74GS	D-type Flip Flpos	1
	IC49	D74HC393GS	DUAL 4 bit Binary Counter	1
	IC54	M5218AFP	Operational Amplifier	1
	IC59	D74HC08GS	QUAD 2 input AND GATE	1
	IC60	D74HC32GS	QUAD 2 input OR GATE	1
	IC62	D74HC04GS	6 Inveter	1
	IC82	BA10393F	Comparator	1
	TRANSISTORS			
	Q1	2SB709AR	Transistor	1
	Q2	2SD601AQ	Transistor	1
S	Q4	2SC1815GR	Transistor	1
	Q5	2SB946P	Transistor	1
S	Q6, 8	2SC1815GR	Transistor	2
	Q33	2SD601AQ	Transistor	1
	DIODES			
	D1	MA165	Diode	1
	D6	MA2062LF	Zener, 6.2V	1
	D7	SVDGERC9102	Diode	1
	D8	MA1030	Zener, 3.0V	1
	D9	MA165	Diode	1
	D10	MA4051	Zener, 5.1V	1
	D11~13	MA165	Diode	3
	D14	MA4056	Zener, 5.6V	1
	D15~19	MA165	Diode	5
	OSCILLATORS			
○	X1	QSXG1A2000A	20MHz, Quartz Oscillator	1
	X2	QSXG1I4915A	49MHz, Quartz Oscillator	1
	X3	QSXG1I3200A	32MHz, Quartz Oscillator	1
	X4	EF0EC8004A5	8MHz, Ceramic Oscillator	1
	COMPONENT COMBINATIONS			
	Z1~4, 6~11	EXBS8VR000V	0Ω×4	10
	Z15, 16	EXBS8V471J	470Ω×4	2
	Z17	EXBV8V472J	4.7kΩ×4	1
○	Z18, 19	EXBV8VR000V	0Ω×4	2
	Z20	EXBV8V472J	4.7kΩ×4	1
	Z21, 22	EXBS8V102J	1kΩ×4	2
	Z24	EXBV8V472J	4.7kΩ×4	1
	Z25, 27	EXBS8V470J	47Ω×4	2
○	Z50, 51	EXBV8VR000V	0Ω×4	2
	Z61	EXBV8V471J	470Ω×4	1
○	Z70, 71	EXBV8VR000V	0Ω×4	2
	COIL			
	L1	SLCG3A121T	Coil	1
	RESISTORS			
	R1	ERJ6GEYJ103V	10kΩ	1
	R4	ERJ6GEYJ222V	2.2kΩ	1
	R5, 6	ERJ6GEYJ102V	1kΩ	2
	R7	ERJ6GEYJ104V	100kΩ	1
	R8	ERJ6GEYJ102V	1kΩ	1

Ref. No.	Part No.	Description	P/S
R9	ERJ6GEYJ154V	150kΩ	1
R10	ERJ6GEYJ472V	4.7kΩ	1
R11	ERJ6GEYJ471V	470Ω	1
R12, 13	ERJ6GEYJ101V	100Ω	2
R14	ERJ6GEYJ472V	4.7kΩ	1
R15	ERJ6GEYJ222V	2.2kΩ	1
R16	ERJ6GEYJ472V	4.7kΩ	1
R17	ERJ6GEYJ221V	220Ω	1
R18	ERJ6GEYJ101V	100Ω	1
R19	ERJ6GEYJ472V	4.7kΩ	1
R20	ERJ6GEYJ221V	220Ω	1
R25	ERJ6GEYJ101V	100Ω	1
R26	ERJ6GEYJ103V	10kΩ	1
R27	ERJ6GEYJ472V	4.7kΩ	1
R28, 29	ERJ6GEYJ103V	10kΩ	2
R31	ERJ6GEYJ472V	4.7kΩ	1
R33, 34	ERJ6GEYJ103V	10kΩ	2
R35~37	ERJ6GEYJ471V	470Ω	3
R38	ERJ6GEYJ102V	1kΩ	1
R39	ERJ6GEYJ154V	150kΩ	1
R45	ERJ6GEYJ473V	47kΩ	1
R46	ERJ6GEYJ221V	220Ω	1
R47	ERJ6GEYJ470V	47Ω	1
R48~50, 52, 53	ERJ6GEYJ472V	4.7kΩ	5
R54	ERJ6GEYJ221V	220Ω	1
R55	ERJ6GEY0R00V	0Ω	1
R56	ERJ6GEYJ333V	33kΩ	1
R58	ERJ6GEY0R00V	0Ω	1
R60	ERJ6GEYJ102V	1kΩ	1
R85, 87	ERJ6GEY0R00V	0Ω	2
R90, 91	ERJ6GEYJ470V	47Ω	2
R92	ERJ6GEYJ222V	2.2kΩ	1
R93, 94	ERJ6GEYJ470V	47Ω	2
R95, 96	ERJ6GEYJ331V	330Ω	2
R99	ERJ6GEYJ222V	2.2kΩ	1
R101	ERJ6GEYJ221V	220Ω	1
R102	ERJ6GEYJ471V	470Ω	1
R104	ERJ6GEYJ222V	2.2kΩ	1
R105	ERJ6GEYJ682V	6.8kΩ	1
R111	ERJ6GEYJ103V	10kΩ	1
R123	ERJ6GEY0R00V	0Ω	1
R140	ERJ6GEYJ102V	1kΩ	1
R142	ERJ6GEYJ822V	8.2kΩ	1
R145	ERJ6GEYJ683V	68kΩ	1
R146	ERJ6GEYJ333V	33kΩ	1
R147	ERJ6GEYJ273V	27kΩ	1
R153	ERJ6GEYJ683V	68kΩ	1
R155	ERJ6GEYJ222V	2.2kΩ	1
R220, 221	ERJ6GEYJ102V	1kΩ	2
R222	ERJ6GEYJ101V	100Ω	1
R223	ERJ6GEYJ683V	68kΩ	1
R224	ERJ6GEYJ471V	470Ω	1
R321	ERJ6GEYJ102V	1kΩ	1
R322	ERJ6GEYJ471V	470Ω	1
R323	ERJ6GEYJ102V	1kΩ	1
R350, 352	ERJ6GEY0R00V	0Ω	2
R562	ERJ6GEYJ682V	6.8kΩ	1
R593	ERJ6GEYJ221V	220Ω	1
R594	ERJ6GEYJ101V	100Ω	1
R667	ERJ6GEYJ222V	2.2kΩ	1
R700, 701	ERJ6GEYJ470V	47Ω	2
R702	ERJ6GEYJ472V	4.7kΩ	1
R704	ERJ6GEYJ470V	47Ω	1
R711	ERJ6GEY0R00V	0Ω	1
R750	ERJ6GEYJ222V	2.2kΩ	1
R776	ERJ6GEYJ101V	100Ω	1
R778, 779	ERJ6GEY0R00V	0Ω	2

Ref. No.	Part No.	Description	P/S
CAPACITORS			
C5, 6, 8, 12	ECUV1H104ZFX	0.1µF	4
C13	ECUV1E224ZFX	0.22µF	1
C14, 20~25	ECUV1H104ZFX	0.1µF	7
C26	ECUV1H101JG	100pF	1
C27, 28	ECUV1H104ZFX	0.1µF	2
C30	ECUV1H101JG	100pF	1
C31, 32	ECUV1H104ZFX	0.1µF	2
C33	ECUV1H101JG	100pF	1
C42	ECUV1H104ZFX	0.1µF	1
C43	ECUV1H101JG	100pF	1
C44, 45, 63, 84, 85~87	ECUV1H104ZFX	0.1µF	7
C48	ECUV1H060DCN	6pF	1
C113	EECS5R5V105	1F, 5.5V, Memory Back-up	1
C123	ECEA0JKA470	47µF, 6.3V	1
C125, 137	ECUV1H104ZFX	0.1µF	2
C140	ECEA0JKA470	47µF, 6.3V	1
C141	ECEA1CKA100	10µF, 16V	1
C142	ECEA0JKA470	47µF, 6.3V	1
C143~147	ECUV1H104ZFX	0.1µF	5
C148	ECCR1H681J	680pF	1
C151	ECEA1HKA010	1µF, 50V	1
C153	ECUV1H222KX	0.0022µF	1
C155	ECUV1H104ZFX	0.1µF	1
C223	ECRF1H104ZF	0.1µF	1
C230	ECUV1H104ZFX	0.1µF	1
C250	EECS5R5V105	1F, 5.5V, Memory Back-up	1
C358	ECUV1H104ZFX	0.1µF	1
C380	ECEA1CKN100	10µF, 16V	1
C551	ECEA0JU102	1000µF, 6.3V	1
C553	ECUV1H223KBX	0.022µF	1
C555	ECEA1VKA470	47µF, 35V	1
C556	ECUV1H472KBG	0.0047µF	1
C557	ECEA1CKA100	10µF, 16V	1
C558, 633, 700, 701, 730~734, 783	ECUV1H104ZFX	0.1µF	10

AS AMP & POWER SUPPLY CIRCUIT

	Ref. No.	Part No.	Description	P/S
	INTEGRATED CIRCUITS			
	IC1	M5F78M15L	+15V Voltage Regulator	1
	IC2	M5F79M15L	−15V Voltage Regulator	1
○	IC7~10	M5218AL	Operational Amplifier	4
	TRANSISTORS			
	Q1	2SC3940ARS	Transistor	1
	Q2	2SA1534AR	Transistor	1
S	Q5, 6	2SA1015-GR	2SA933STRS (SUB. Part)	2
S	Q7, 11, 12	2SC1815GR	Transistor	3
S	Q13	2SA1015-GR	2SA933STRS (SUB. Part)	1
S	Q14	2SC1815GR	Transistor	1
S	Q15	2SA1015-GR	2SA933STRS (SUB. Part)	1
	Q16, 33	2SB946P	Transistor	2
	Q17	2SD1271P	Transistor	1
S	Q22	2SA1015-GR	2SA933STRS (SUB. Part)	1
	DIODES			
	D1, 2 ⚠	SVDGERA1502	Rectifier	2
	D3, 5, 8, 10 ⚠	SVDS3V20	Rectifier	4

	Ref. No.	Part No.	Description	P/S
	D11, 12	MA4180	Zener, 18V	2
	D15	MA165	Diode	1
	D16	EK04	Diode	1
○	D19, 20	MA29WA	Diode	2
	FUSES			
	F5 ⚠	XBA2C20TB0	T2A, 250V, Others	1
	F5 ⚠	XBA1C25NU100	T2.5A, 125V, M MC XM	1
	RESISTORS			
	R10	ERDS2TJ222	2.2kΩ	1
	R13	ERDS2TJ391	390Ω	1
	R16	ERDS2TJ394	390kΩ	1
	R25	ERDS2TJ102	1kΩ	1
	R26	ERDS2TJ125	120kΩ	1
	R27	ERDS2TJ394	390kΩ	1
	R28	ERDS2TJ471	470Ω	1
	R31	ERDS2TJ821	820Ω	1
	R32	ERDS2TJ823	82kΩ	1
	R39	ERDS2TJ152	1.5kΩ	1
	R41	ERDS2TJ104	100kΩ	1
	R42	ERDS2TJ154	150kΩ	1
	R43	ERDS2TJ220	22Ω	1
	R49	ERDS2TJ102	1kΩ	1
	R50, 51 ⚠	ERD2FCVJ4R7	4.7Ω, 1/4W, Fuse Type	2
	R52, 53	ERDS2TJ103	10kΩ	2
	R54, 55 ⚠	ERQ14AJ2R0	2Ω, 1/4W, Fuse Type	2
	R56 ⚠	ERD2FCVJ6R8	6.8Ω, 1/4W, Fuse Type	1
	R57 ⚠	ERD2FCJ6R8	6.8Ω, 1/4W, Fuse Type	1
	R58~60	ERDS2TJ103	10kΩ	3
	R61~63, 80	ERDS2TJ472	4.7kΩ	4
	R81	ERDS2TJ104	100kΩ	1
	R83	ERDS2TJ103	10kΩ	1
	R84	ERDS2TJ473	47kΩ	1
	R85	ERDS2TJ332	3.3kΩ	1
	R86	ERDS2TJ823	82kΩ	1
	R89	ERDS2TJ222	2.2kΩ	1
	R90	ERDS2TJ102	1kΩ	1
	R91, 92	ERDS2TJ222	2.2kΩ	2
○	R93	ER0S2CKF1541	1.54kΩ	1
	R94	ER0S2CKF1001	1kΩ, ±1%	1
	R95	ER0S2CKF1001	1kΩ, ±1%	1
	R96, 97 ⚠	ERD2FCVG101	100Ω, 1/4W, Fuse Type	2
	R98, 99	ERDS2TJ331	330Ω	2
	R100 ⚠	ERD25FVJ4R7	4.7Ω, 1/4W, Flame-Proof	1
	R102	ERDS2TJ152	1.5kΩ	1
	R117	ERDS2TJ331	330Ω	1
	R118 ⚠	ERD2FCVJ6R8	6.8Ω, 1/4W, Fuse Type	1
	R202 ⚠	ERD25FVJ4R7	4.7Ω, 1/4W, Flame-Proof	1
	CAPACITORS			
	C6	ECQG1H472KZ	0.0047μF	1
	C12, 13	ECQV1H104JM	0.1μF	2
	C14	ECQV1H104JM	0.1μF	1
	C16	ECQB1H153JF	0.015μF	1
	C17	ECQB1H333JF	0.033μF	1
	C19	ECQV1H104JM	0.1μF	1
	C20	ECQG1H222KZ	0.0022μF	1
	C25	ECCR1H220J	22pF	1
	C28 ⚠	ECQE1A104M6	0.1μF, 125V	1
	C29, 31	ECEA1VU332	3300μF, 35V	2
	C32, 34	ECEA1VU222	2200μF, 35V	2
	C36, 37	ECRF1H104ZF	0.1μF	2

	Ref. No.	Part No.	Description	P/S
	C38	ECEA1CKA100	10μF, 16V	1
	C39	ECEA1CU331	330μF, 16V	1
	C49	ECEA1HKN2R2	2.2μF, 50V	1
	C50	ECQB1H223JF	0.022μF	1
	C51	ECQV1H104JM	0.1μF	1
	C60	ECEA50Y2R2	2.2μF, 50V	1
	C63	ECEA50Y22	22μF, 50V	1
	C64	ECEA50Y1	1μF, 50V	1

ACP AC POWER SUPPLY CIRCUIT

	Ref. No.	Part No.	Description	P/S
	COIL			
	L1 ⚠	SLTGLF3	Line Filter	1
	SWITCH			
	S1 ⚠	SSRG100A	Voltage Selector, X XR XS XD XT	1
	FUSES			
	F1 ⚠	XBA2C16TB0	T1.6A, 250V, X XD XT XS XR	1
	F1 ⚠	XBA1C40NU100	4A, 125V, M MC XM	1
	F2 ⚠	XBA2C10TB0	T1.0A, 250V, X XD XT XS XR	1
	F3 ⚠	XBA2C10TB0	T1.0A, 250V, except M MC XM	1
	CAPACITORS			
	C1 ⚠	ECQU2A104MN	0.1μF, 250V, Across-the Line Capacitor, Others	1
○	C1 ⚠	ECQU2A104MT	0.1μF, 250V, Across-the Line Capacitor, XL EN EZ EK EW EF EA EP EH	1
	C2 ⚠	ECKCVA1472MF	4700pF, Line Capacitor	1
	C3	ECRF1H104ZF	0.1μF	1

CPSQ SEQUENCER CONTROL CIRCUIT

Ref. No.	Part No.	Description	P/S
DIODES			
D1~18	MA165	Diode	18
D19~36	LN382G	LED (Green)	18
SWITCHES			
S1~18	EVQ21907K	Push Switch	18
VARIABLE RESISTOR			
VR1	EVD06510B24G	20kΩ B	1
CAPACITOR			
C1	ECRF1H104ZF	0.1μF	1

CPSL LOWER CONTROL PANEL LEFT

	Ref. No.	Part No.	Description	P/S
	INTEGRATED CIRCUITS			
	IC1	M37471M2196S	16 bit Microcomputer	1
○	IC2	H74LS138FPTR		1
	IC3~5	M74LS07FP	Hex Buffers	3
	TRANSISTORS			
	Q1~5, 7, 8	2SA830SB	Transistor	7
	DIODES			
	D8, 11, 13, 14, 15, 17~32, 39, 40, 45, 47~62, 65~78, 83, 85, 86, 91, 92	MA165	Diode	59
	D208~213, 215, 220, 222, 224~228, 230~237, 239~243, 245~252, 254~258, 260, 261, 265, 267~269, 271, 299, 300	LN282R	LED (Red)	49
	D214, 218, 221, 229, 238, 244, 253, 259, 314	LN382G	LED (Green)	9
	OSCILLATOR			
	X1	EF0EC4004A3	4MHz, Ceramic Oscillator	1
	COMPONENT COMBINATION			
	Z1	EXBPI8472JM	4.7kΩ×8	1
	SWITCHES			
	S8, 11, 13~15, 17~32, 39, 40, 45, 47~62, 65~78, 81, 83, 86, 91, 92, 185	EVQ21907K	Push Switch	60
	IC PROTECTOR			
	IP1 ⚠	ICP-N10T104	IC Protector	1
	RESISTORS			
	R1~15	ERDS2TJ680	68Ω	15
	R16	ERDS2TJ472	4.7kΩ	1
	R17~24	ERDS2TJ103	10kΩ	8
	R25	ERDS2T0	0Ω, 1/4W	1
	R26	ERDS2TJ333	33kΩ	1
	R27	ERDS2TJ102	1kΩ	1
	R28	ERDS2TJ221	220Ω	1
	R29	ERDS2T0	0Ω, 1/4W	1
	R31	ERDS2TJ184	180kΩ	1
	R32~35	ERDS2TJ102	1kΩ	4
	CAPACITORS			
	C1	ECEA0JKA331	6V, 330μF	1
	C2~3	ECQV1H104JM	0.1μF	2
	C4	ECEA0JKA470	47μF, 6.3V	1
	C8~11	ECQV1H104JM	0.1μF	4

CN CONNECTOR CIRCUIT

	Ref. No.	Part No.	Description	P/S
	CAPACITOR			
	C8	ECRF1H104ZF	0.1μF	1

JACK JACK CIRCUIT

	Ref. No.	Part No.	Description	P/S
	INTEGRATED CIRCUITS			
○	IC1	QCPL-260L	Photo Coupler	1
○	IC2	M5218AL	Operational Amplifier	1
	TRANSISTORS			
S	Q1~3	2SA1015-GR	2SA933STRS (SUB. Part)	3
	DIODES			
	D1~5	MA165	Diode	5
	COILS			
	L1~6	QLQGT3T150SA	Coil	6
	L8, 9	QLQGT1B800MA	Coil	2
	JACKS			
	JK1	QJJG003AA	AUX IN	1
	JK3	QJJG003AA	LINE IN	1
	JK5	SJSG1370A	MIDI THRU	1
	JK6	SJSG1370A	MIDI OUT	1
	JK7	SJSG1370A	MIDI THRU	1
	JK8	SJJG100A	PHONES 1	1
	JK9	SJJG100A	PHONES 2	1
	RESISTORS			
	R1	ERDS2TJ102	1kΩ	1
	R3	ERDS2TJ472	4.7kΩ	1
	R5	ERDS2TJ822	8.2kΩ	1
	R7	ERDS2TJ103	10kΩ	1
	R9	ERDS2TJ682	6.8kΩ	1
	R11	ERDS2TJ223	22kΩ	1
	R20	ERDS2TJ221	220Ω	1
	R21	ERDS2TJ102	1kΩ	1
	R22	ERDS2TJ330	33Ω	1
	R23	ERDS2TJ151	150Ω	1
	R24	ERDS2TJ100	10Ω	1
	R25	ERDS2TJ103	10kΩ	1
	R26, 27	ERDS2TJ680	68Ω	2
○	R30~33	ERG1SJ680	68Ω, 1W, Flame-Ploof	4
	R40, 41	ERDS2TJ471	470Ω	2
	R42	ERDS2TJ561	560Ω	1
	CAPACITORS			
	C1	ECCR1H471J	470pF	1
	C4	ECEA1HKN010	1μF, 50V	1
	C10	ECCR1H471J	470pF	1
	C13	ECRF1H104ZF	0.1μF	1
	C14	ECBA1H101KB	100pF	1
	C15	ECRF1H104ZF	0.1μF	1
	C17	ECQB1H223JF	0.022μF	1
	C20	ECRF1H104ZF	0.1μF	1
	C21, 22	ECCR1H221J	220pF	2
	C23, 25	ECRF1H104ZF	0.1μF	2
	C31, 32	ECQB1H473JF	0.047μF	2
	C40	ECRF1H104ZF	0.1μF	1

CPR CONTROL PANEL RIGHT CIRCUIT

	Ref. No.	Part No.	Description	P/S
	INTEGRATED CIRCUITS			
	IC1	M37471M2196S	16 bit Microcomputer	1
	IC2, 3	HD74LS07P	Hex Buffers	2
	TRANSISTORS			
	Q1~5	2SA830SB	Transistor	5
S	Q12	2SA1015-GR	2SA933STRS (SUB. Part)	1
S	Q13	2SC1815GR	Transistor	1
	DIODES			
	D1~3, 5~7, 10~35, 62	MA165	Diode	33
	D36, 38, 39, 41, 44, 46, 50, 56, 60, 61	LN282R	LED (Red)	10
	D40, 42, 44, 45, 47~49, 52~54, 57	LN382G	LED (Green)	11
	OSCILLATOR			
	X1	EF0EC4004A3	4MHz, Ceramic Oscillator	1
	SWITCHES			
	S1~3, 5~7, 10~15, 16~35	EVQ21907K	Push Switch	32
	IC PROTECTOR			
	IP1 ⚠	ICP-N10T104	IC Protector	1
	VARIABLE RESISTORS			
	VR1	QRVG20N01B14	10kΩ B	1
	RESISTORS			
	R1	ERDS2TJ473	47kΩ	1
	R2	ERDS2TJ333	33kΩ	1
	R3	ERDS2TJ182	1.8kΩ	1
	R4	ERDS2TJ392	3.9kΩ	1
	R5	ERDS2TJ472	4.7kΩ	1
	R6	ERDS2TJ154	150kΩ	1
	R7	ERDS2TJ472	4.7kΩ	1
	R8	ERDS2TJ222	2.2kΩ	1
	R9	ERDS2T0	0Ω, 1/4W	1
	R10	ERDS2TJ102	1kΩ	1
	R11	ERDS2TJ101	100Ω	1
	R12	ERDS2TJ222	2.2kΩ	1
	R13	ERDS2TJ332	3.3kΩ	1
	R14, 15	ERDS2TJ221	220Ω	2
	R16	ERDS2TJ102	1kΩ	1
	R17	ERDS2TJ123	12kΩ	1
	R18~29	ERDS2TJ103	10kΩ	12
	R30~40	ERDS2TJ680	68Ω	11
	R41	ERDS2TJ333	33kΩ	1
	CAPACITORS			
	C1	ECEA1CKA100	10μF, 16V	1
	C2	ECRF1H104ZF	0.1μF	1
	C3	ECEA0JKA470	47μF, 6.3V	1
	C4	ECRF1H104ZF	0.1μF	1
	C5	ECEA0JKA470	47μF, 6.3V	1
	C6~11	ECRF1H104ZF	0.1μF	6

CPL CONTROL PANEL LEFT CIRCUIT

	Ref. No.	Part No.	Description	P/S
	INTEGRATED CIRCUITS			
	IC1	M37471M2196S	16 bit Microcomputer	1
	IC2, 3	HD74LS07P	Hex Buffers	2
	TRANSISTORS			
	Q1~4	2SA830SB	Transistor	4
	DIODES			
	D1, 3, 5, 7, 9, 11, 18, 20, 24, 25, 27, 29, 31, 34, 36, 40, 43~45, 49~56, 59, 73~78, 81, 83, 84, 86~88	MA165	Diode	37
	D101~105, 107, 109~112, 117, 119~121, 123, 125~129, 157, 159	LN282R	LED (Red)	22
	D108, 116, 130~132	LN382G	LED (Green)	5
	OSCILLATOR			
	X1	EF0EC4004A3	4MHz, Ceramic Oscillator	1
	SWITCHES			
	S1, 3, 5, 7, 9, 11, 18, 20, 24, 25, 27, 29, 31, 34, 36, 40, 43~45, 49~56, 59, 73~78, 81, 83, 84, 86~88	EVQ21907K	Push Switch	38
	IC PROTECTOR			
	IP1 ⚠	ICP-N10T104	IC Protector	1
	RESISTORS			
	R1	ERDS2TJ333	33kΩ	1
	R2	ERDS2T0	0Ω, 1/4W	1
	R3	ERDS2TJ102	1kΩ	1
	R4, 5	ERDS2TJ221	220Ω	2
	R6~9	ERDS2TJ472	4.7kΩ	4
	R10~21	ERDS2TJ103	10kΩ	12
	R24~31, 33, 34	ERDS2TJ680	68Ω	10

P/S
1

P/S
1 1
3
5
6 2
1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 2 4 2 1
1 1 1 1 1 1 1 1 2 2

	Ref. No.	Part No.	Description	P/S
	C31, 32	ECQB1H473JF	0.047μF	2
	C40	ECRF1H104ZF	0.1μF	1

CPR CONTROL PANEL RIGHT CIRCUIT

	Ref. No.	Part No.	Description	P/S
	INTEGRATED CIRCUITS			
	IC1	M37471M2196S	16 bit Microcomputer	1
	IC2, 3	HD74LS07P	Hex Buffers	2
	TRANSISTORS			
	Q1~5	2SA830SB	Transistor	5
S	Q12	2SA1015-GR	2SA933STRS (SUB. Part)	1
S	Q13	2SC1815GR	Transistor	1
	DIODES			
	D1~3, 5~7, 10~35, 62	MA165	Diode	33
	D36, 38, 39, 41, 44, 46, 50, 56, 60, 61	LN282R	LED (Red)	10
	D40, 42, 44, 45, 47~49, 52~54, 57	LN382G	LED (Green)	11
	OSCILLATOR			
	X1	EF0EC4004A3	4MHz, Ceramic Oscillator	1
	SWITCHES			
	S1~3, 5~7, 10~15, 16~35	EVQ21907K	Push Switch	32
	IC PROTECTOR			
	IP1 ⚠	ICP-N10T104	IC Protector	1
	VARIABLE RESISTORS			
	VR1	QRVG20N01B14	10kΩ B	1
	RESISTORS			
	R1	ERDS2TJ473	47kΩ	1
	R2	ERDS2TJ333	33kΩ	1
	R3	ERDS2TJ182	1.8kΩ	1
	R4	ERDS2TJ392	3.9kΩ	1
	R5	ERDS2TJ472	4.7kΩ	1
	R6	ERDS2TJ154	150kΩ	1
	R7	ERDS2TJ472	4.7kΩ	1
	R8	ERDS2TJ222	2.2kΩ	1
	R9	ERDS2T0	0Ω, 1/4W	1
	R10	ERDS2TJ102	1kΩ	1
	R11	ERDS2TJ101	100Ω	1
	R12	ERDS2TJ222	2.2kΩ	1
	R13	ERDS2TJ332	3.3kΩ	1
	R14, 15	ERDS2TJ221	220Ω	2
	R16	ERDS2TJ102	1kΩ	1
	R17	ERDS2TJ123	12kΩ	1
	R18~29	ERDS2TJ103	10kΩ	12
	R30~40	ERDS2TJ680	68Ω	11
	R41	ERDS2TJ333	33kΩ	1

	Ref. No.	Part No.	Description	P/S
	CAPACITORS			
	C1	ECEA1CKA100	10μF, 16V	1
	C2	ECRF1H104ZF	0.1μF	1
	C3	ECEA0JKA470	47μF, 6.3V	1
	C4	ECRF1H104ZF	0.1μF	1
	C5	ECEA0JKA470	47μF, 6.3V	1
	C6~11	ECRF1H104ZF	0.1μF	6

CPL CONTROL PANEL LEFT CIRCUIT

	Ref. No.	Part No.	Description	P/S
	INTEGRATED CIRCUITS			
	IC1	M37471M2196S	16 bit Microcomputer	1
	IC2, 3	HD74LS07P	Hex Buffers	2
	TRANSISTORS			
	Q1~4	2SA830SB	Transistor	4
	DIODES			
	D1, 3, 5, 7, 9, 11, 18, 20, 24, 25, 27, 29, 31, 34, 36, 40, 43~45, 49~56, 59, 73~78, 81, 83, 84, 86~88	MA165	Diode	37
	D101~105, 107, 109~112, 117, 119~121, 123, 125~129, 157, 159	LN282R	LED (Red)	22
	D108, 116, 130~132	LN382G	LED (Green)	5
	OSCILLATOR			
	X1	EF0EC4004A3	4MHz, Ceramic Oscillator	1
	SWITCHES			
	S1, 3, 5, 7, 9, 11, 18, 20, 24, 25, 27, 29, 31, 34, 36, 40, 43~45, 49~56, 59, 73~78, 81, 83, 84, 86~88	EVQ21907K	Push Switch	38
	IC PROTECTOR			
	IP1 ⚠	ICP-N10T104	IC Protector	1
	RESISTORS			
	R1	ERDS2TJ333	33kΩ	1
	R2	ERDS2T0	0Ω, 1/4W	1
	R3	ERDS2TJ102	1kΩ	1
	R4, 5	ERDS2TJ221	220Ω	2
	R6~9	ERDS2TJ472	4.7kΩ	4
	R10~21	ERDS2TJ103	10kΩ	12
	R24~31, 33, 34	ERDS2TJ680	68Ω	10

	Ref. No.	Part No.	Description	P/S
	CAPACITORS			
	C1~3	ECRF1H104ZF	0.1μF	3
	C4	ECEA0JKA470	47μF, 6.3V	1
	C7	ECRF1H104ZF	0.1μF	1
	C8, 9	ECCR1H101J	100pF	2

PKB PEDAL KEYBOARD CIRCUIT

	Ref. No.	Part No.	Description	P/S
	TRANSISTORS			
S	Q1, 2, 4	2SA1015-GR	2SA933STRS (SUB. Part)	3
S	Q5~17	2SC2320LFG	2SC1310FG (SUB. Part)	13
	RESISTORS			
	R1, 2	ER0S2CKF4700	470Ω, ±1%	2
	R3	ERDS2TJ472	4.7kΩ	1
	R5	ER0S2CKF4700	470Ω, ±1%	1
	R7	ERDS2TJ472	4.7kΩ	1
	R8	ERDS2TJ103	10kΩ	1
	R9	ERDS2TJ472	4.7kΩ	1
	R10	ERDS2TJ103	10kΩ	1
	R11	ERDS2TJ472	4.7kΩ	1
	R12	ERDS2TJ103	10kΩ	1
	R13	ERDS2TJ472	4.7kΩ	1
	R14	ERDS2TJ103	10kΩ	1
	R15	ERDS2TJ472	4.7kΩ	1
	R16	ERDS2TJ103	10kΩ	1
	R17	ERDS2TJ472	4.7kΩ	1
	R18	ERDS2TJ103	10kΩ	1
	R19	ERDS2TJ472	4.7kΩ	1
	R20	ERDS2TJ103	10kΩ	1
	R21	ERDS2TJ472	4.7kΩ	1
	R22	ERDS2TJ103	10kΩ	1
	R23~29	ER0S2CKF4700	470Ω, ±1%	7
	R30	ER0S2CKF1001	1kΩ, ±1%	1
	R32	ERDS2TJ472	4.7kΩ	1
	R33	ERDS2TJ103	10kΩ	1
	R34	ERDS2TJ472	4.7kΩ	1
	R35	ERDS2TJ103	10kΩ	1
	R36	ERDS2TJ472	4.7kΩ	1
	R37	ERDS2TJ103	10kΩ	1
	R38	ERDS2TJ472	4.7kΩ	1
	R39	ERDS2TJ103	10kΩ	1
	R40	ERDS2TJ472	4.7kΩ	1
	R41	ERDS2TJ103	10kΩ	1
	R42~45	ER0S2CKF4700	470Ω, ±1%	4
	R46	ER0S2CKF2201	2.2kΩ, ±1%	1
	R51	ERDS2TJ472	4.7kΩ	1

EXP EXPRESSION CIRCUIT

	Ref. No.	Part No.	Description	P/S
	CDS			
	CS1	SVEG5	Light Sensitive Device	1

MKBL LOWER MANUAL KEYBOARD CIRCUIT

	Ref. No.	Part No.	Description	P/S
	DIODES			
S	D1~88	MA162A	MA150IR (SUB. Part)	88

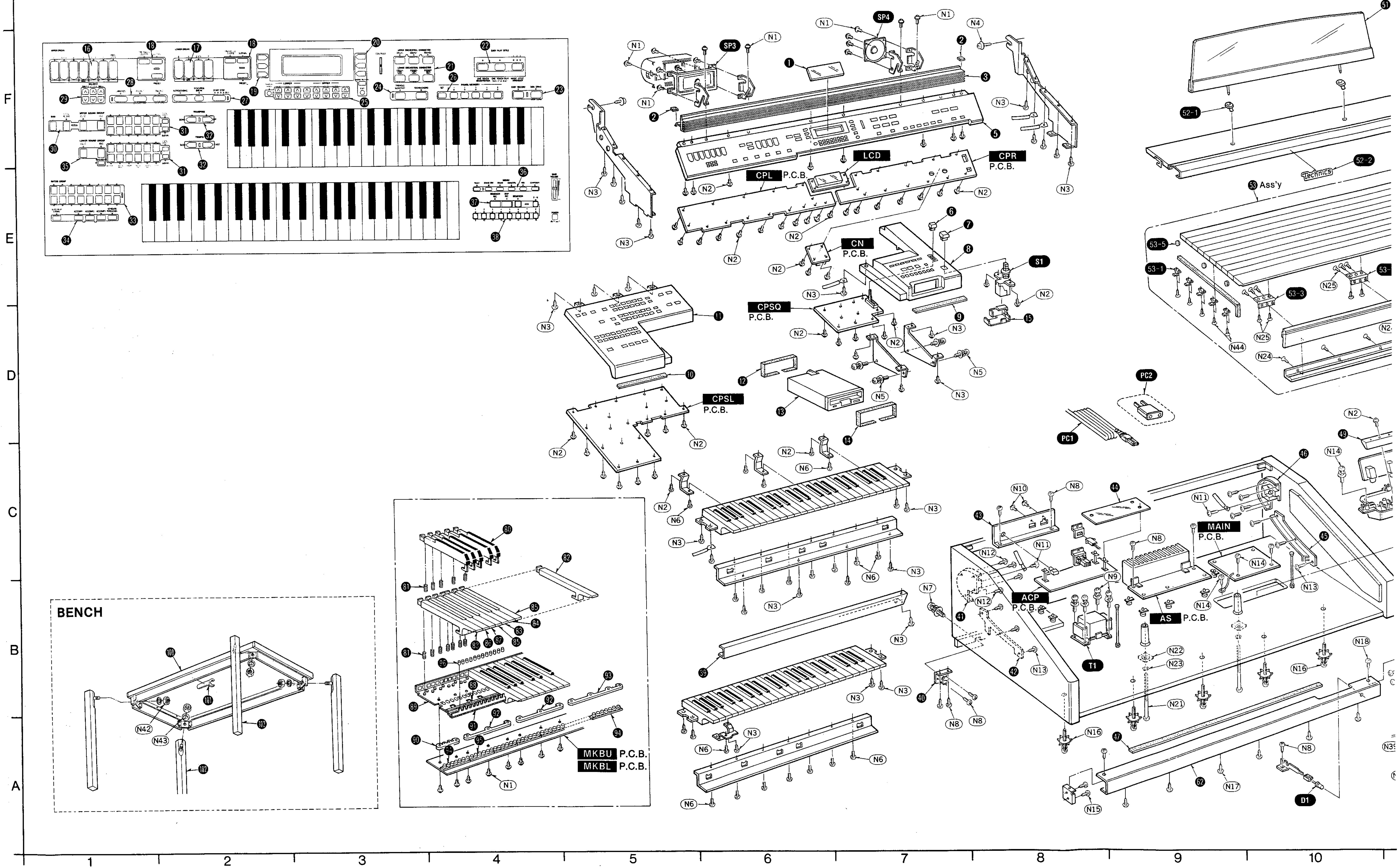
MKBU UPPER MANUAL KEYBOARD CIRCUIT

	Ref. No.	Part No.	Description	P/S
	INTEGRATED CIRCUIT			
	IC1	MN50020PGV	Gate Array	1
	DIODES			
S	D1~88	MA162A	MA150IR (SUB. Part)	88
	COMPONENT COMBINATION			
	Z1	EXBPI8472JM	4.7kΩ×8	1
	CAPACITORS			
	C2	ECRF1H104ZF	0.1μF	1
	C3	ECBA1H471KB5	470pF	1
	C4	ECEA0JKA470	47μF, 6.3V	1

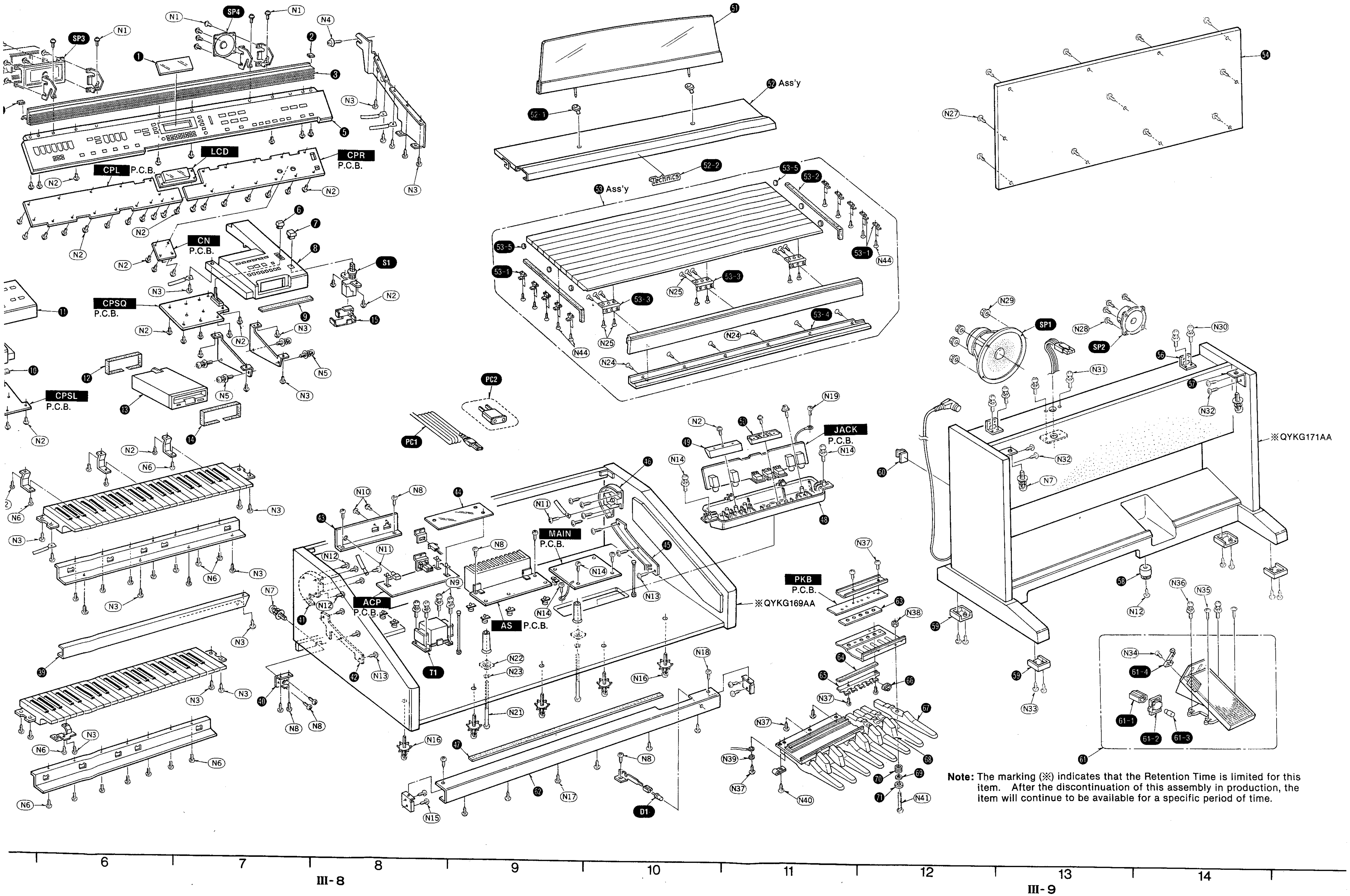
■ WIRING PARTS

	Ref. No.	Part No.	Description	P/S
○	W2	QEXGSS11030A		1
	W3	QEXGSS08030A	Connector with Wire	1
	W4	QEXGSA07065A	Connector with Wire	1
○	W5	QEXGSA10010A		1
○	W6	QEXGSS13080A		1
○	W7	QEXGSA04030A		1
	W8	QEXGSA12035A	Connector with Wire	1
	W10	QEXGZA12055A	Connector with Wire	1
○	W11	QEXGSS11060A		1
○	W12	QEXGSA10045A		1
	W13	QEXGVH03200B	Connector with Wire	1
○	W14	QEXGEH03040J		1
○	W15	QEXGVH04205B		1
○	W16	QEXGEL03080B	Connector with Wire	1
○	W17	QEXGZA08100E	Connector with Wire	1
○	W18	QEXGEL03030B	Connector with Wire	1
○	W19	QEXGEL03030D	Connector with Wire	1
	W20	SWKG04158LSA	Connector with wire	1
	W21	QEXGLT04045B	Connector with Wire	1
○	W22	QEXGSA04010A	Connector with Wire	1
○	W24	QEXGZA34085B	Connector with Wire	1
○	W25	QEXGEL03030B	Connector with Wire	1

CABINET PARTS LOCATION



BENCH
CPL P.C.B.
LCD
CPR P.C.B.
CN P.C.B.
CPSQ P.C.B.
CPSL P.C.B.
MAIN P.C.B.
ACP P.C.B.
AS P.C.B.
MKBU P.C.B.
MKBL P.C.B.
SP3
SP4
S1
PC1
PC2
T1
D1
Technics
53 Ass'y
52-1
52-2
53-1
53-3
53-5
N1
N2
N3
N4
N5
N6
N7
N8
N9
N10
N11
N12
N13
N14
N15
N16
N17
N18
N21
N22
N23
N24
N25
N42
N43
N44
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10


N1
SP4
SP3
N4
2
1
3
5
N3
LCD
CPR
P.C.B.
CPL P.C.B.
N2
CN
P.C.B.
6
7
8
S1
CPSQ
P.C.B.
9
15
11
10
12
13
14
CPSL
P.C.B.
N5
PC2
PC1
51
52 Ass'y
52-1
52-2
Technics
53 Ass'y
53-5
53-2
53-1
N44
53-3
N25
53-4
N24
54
N27
N29
SP1
N28
SP2
N30
N31
56
57
N32
※QYKG171AA
60
N7
N19
49
50
JACK
P.C.B.
N14
46
48
N10
N8
44
43
N11
MAIN
P.C.B.
N12
ACP
P.C.B.
N9
AS P.C.B.
45
N13
※QYKG169AA
41
42
T1
N22
N23
N21
N16
N18
40
N6
39
PKB
P.C.B.
N37
63
N38
64
65
66
67
68
69
70
71
N41
N40
N39
47
62
N17
N15
D1
58
59
N33
N36
N35
N34
61-4
61-1
61-2
61-3
61
6
7
8
9
10
11
12
13
14

Note: The marking (※) indicates that the Retention Time is limited for this item. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time.

REPLACEMENT PARTS LIST......Cabinet and Chassis Parts

Notes:

1. The marking (RTL) indicates that the Retention Time is limited for this item. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retension period of availability is dependant on the type of assembly, and in accordance with the laws governing part and product retention.
   After the end of this period, the assembly will no longer be available.
2. ○ mark are new parts.
3. Important safety notice
   Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
4. For part No. with area mark, check the area when placing an order.
5. The raw material indication for synthtic resin
   In order to facilitate classification of parts of synthetic resin manufacture and to promote the recycling of natural resources, a raw material symbol for such parts is indicated in the Ref. No./Material column.

■ CABINET & CHASSIS PARTS

Ref. No.	Part No.	Description	P/S
	SWITCH		
S1 ⚠	ESB8273V	Power Switch	1
	DIODE		
D1	LN29RP	LED, Power Indicator	1
	SPEAKERS		
SP1	EAS20PL255B	20cm, 6Ω	1
SP2	EAS65PH31A3	6.5cm, 8Ω	1
SP3	EAS15S09A	13×6cm 8Ω	2
SP4	EAS65PH31A3	6.5cm, 8Ω	2
	TRANSFORMER		
T1 ⚠	QTPG1M025A	Power Transformer, Others	1
T1 ⚠	QTPG1M022A	Power Transformer, M MC XM	1
T1 ⚠	QTPG1M024A	Power Transformer, XL	1
	POWER CORD & PLUG		
PC1 ⚠	SJAG65	Power Cord, Others	1
PC1 ⚠	VJA0733	Power Cord, EK XD only	1
PC1 ⚠	QJAG013AA	Power Cord, M MC XM	1
PC1 ⚠	QJAG014AA	Power Cord, XR XL	1
PC2 ⚠	SJP5213-1	Attachment Plug, X XT	1
	CABINET PARTS		
○ 1	QKWG020AA	LCD Panel	1
2	SHSG1830A	Felt	2
○ 3	QGKG0002BA	Ornament	1
○ 5 PS	QGPG0089BB	Control Panel	1
6	SBNG7031A	Knob	1
7	QGUG1040AA	Button, Power Switch	1
○ 8 PS	QGPG0034CB	Lower Control Pnel, Right	1
9	QMFG4055AA	Felt	1
10	QMFG4054AA	Felt	1
○ 11 PS	QGPG0090BB	Lower Control Panel, Left	1
12	QMFG4103AA	Felt	1
○ 13	QAUG012AA	DDR Drive Unit	1
14	QMFG1082AA	Felt	1
15 PS	SHRG8390A	Cover, Power SW.	1
○ 16	QGUG1330AAK	Button	1
○ 17	QGUG1331AAK	Button	1
○ 18	QGUG1319BAK	Button	2
○ 19	QGUG1324AAK	Button	1
○ 20	QGUG1325AAK	Button	1
○ 21	QGUG1326BAK	Button	1
○ 22	QGUG1327BAK	Button	1
○ 23	QGUG1329AAK	Button	1
○ 24	QGUG1328AAK	Button	1
○ 25	QGUG1323AA01	Button	1
○ 26	QGUG1332AAK	Button	1
○ 27	QGUG1321AAK	Button	1
○ 28	QGUG1320AAK	Button	1
○ 29	QGUG1318AA01	Button	1
○ 30	QGUG1336BAK	Button	1
○ 31	QGUG1339BA01	Button	2
○ 32	QGUG1341AAK	Button	2
○ 33	QGUG1337AA01	Button	1
○ 34	QGUG1338BAK	Button	1
○ 35	QGUG1340BAK	Button	1
○ 36	QGUG1333AAK	Button	1
○ 37	QGUG1334AAK	Button	1
○ 38	QGUG1335AAK	Button	1
○ 39	QGKG0056CA	Ornament Kerboard	1
40	SUWG3001A	Bracket	2
41 PS	SKEG7640A	Guide Rail	1
42 PS	SKEG7660A	Guide Rail	1
○ 43	SMKG3482B	AC Jack Panel, Others	1
○ 43	SMKG3483B	AC Jack Panel, X XD XS XR XT	1
44	QMRG2015AA	ACP P.C.B. Cover	1
45 PS	SKEG7670A	Guide Rail	1
46 PS	SKEG7650A	Guide Rail	1
47	SHSG2870A	Felt	1
○ 48 PS	QGKG0076EB	Jack Panel	1
49	QMRG7028AC	Bracket	1
50	QMRG7029AC	Bracket	1
○ 51	QYAG2003AB	Music Stand Ass'y	1
○ 52	QKQGA093AA	Top Cover	1
52-1	QMRG7021AA	Sleeve	2
52-2	SGBG160A	Technics Badge	1
○ 53	QKQGF018AA	Keyboard Cover Ass'y	1
53-1	SHRG9930A	Catch, Guide Rail	10
○ 53-2	QMFG1170AA	Felt	2
53-3	SBHG6007-1	Hinge	3
○ 53-4	QGKG0010BB	Ornament	1
53-5	SHSG119	Felt	6
○ 54	QKUG1036AAK	Rear Board SP Box	1
56	SUWG3020A	Bracket	2
57	SUWG3142A	Bracket	2
58	QKAG0004AA	Foot	1
59 PP	SHRG2120D	Foot	4
60	SHRG9620A	Cord Clamper	1

	Ref. No.	Part No.	Description	P/S
	61	SXVG5110A	Expression Pedal	1
	61-1	RJS205ZA	Socket	1
	61-2	SHGG908	Lamp Holding Rubber	1
	61-3	XAMR55P	Lamp	1
	61-4	SSHG14	Foot Switch	1
○	62	QKSGE013BA	Front Panel	1
	63	SHGG50A	Rubber Switch (5 pcs. on one)	3
	64	SHSG1600B	Felt	1
	65	STBG4011A	Key Guide	1
	66	SHSG1460A	Felt	13
○	67 AS	STBG1091A	White Key	8
	68 AS	STBG2052A	Black Key	5
	69	SHGG8130A	Rubber	13
	70	SUSG180A	Spring	13
	71	SHRG9240A	Spacer	13

MANUAL KEYBOARD

	Ref. No.	Part No.	Description	P/S
	80 AS	STBG2071A	Black Key	36
	81	SUSG271A	Spring	88
	82 AS	STBG1151A	White Key (Top Octave C Key)	2
	83 AS	STBG1101A	White Key (C and F Key)	14
	84 AS	STBG1111A	White Key (D Key)	6
	85 AS	STBG1121A	White Key (E and B Key)	14
	86 AS	STBG1131A	White Key (G Key)	8
	87 AS	STBG1141A	White Key (A Key)	8
	88	SHSG1931A	Felt	1
	89	STBG6106A	Chassis	1
	90	SHRGA9021A	Spacer	2
	91	SHSG3960A	Felt	1
	92	SHRGA9010A	Spacer	4
	93	SHRGA9030A	Spacer	1
	94	SSPG7004A	Rubber Switch (7 pcs. on one)	4
	95	SSPG6004A	Rubber Switch (6 pcs. on one)	10
	96	SHGG9052A	Key Guide Rubber	88

BENCH Others

	Ref. No.	Part No.	Description	P/S
○	100	QKQGA033ABK	Seat	1
	101	QFBG007AA	Spanner	1
	102	QKQGZ044AAK	Leg	4

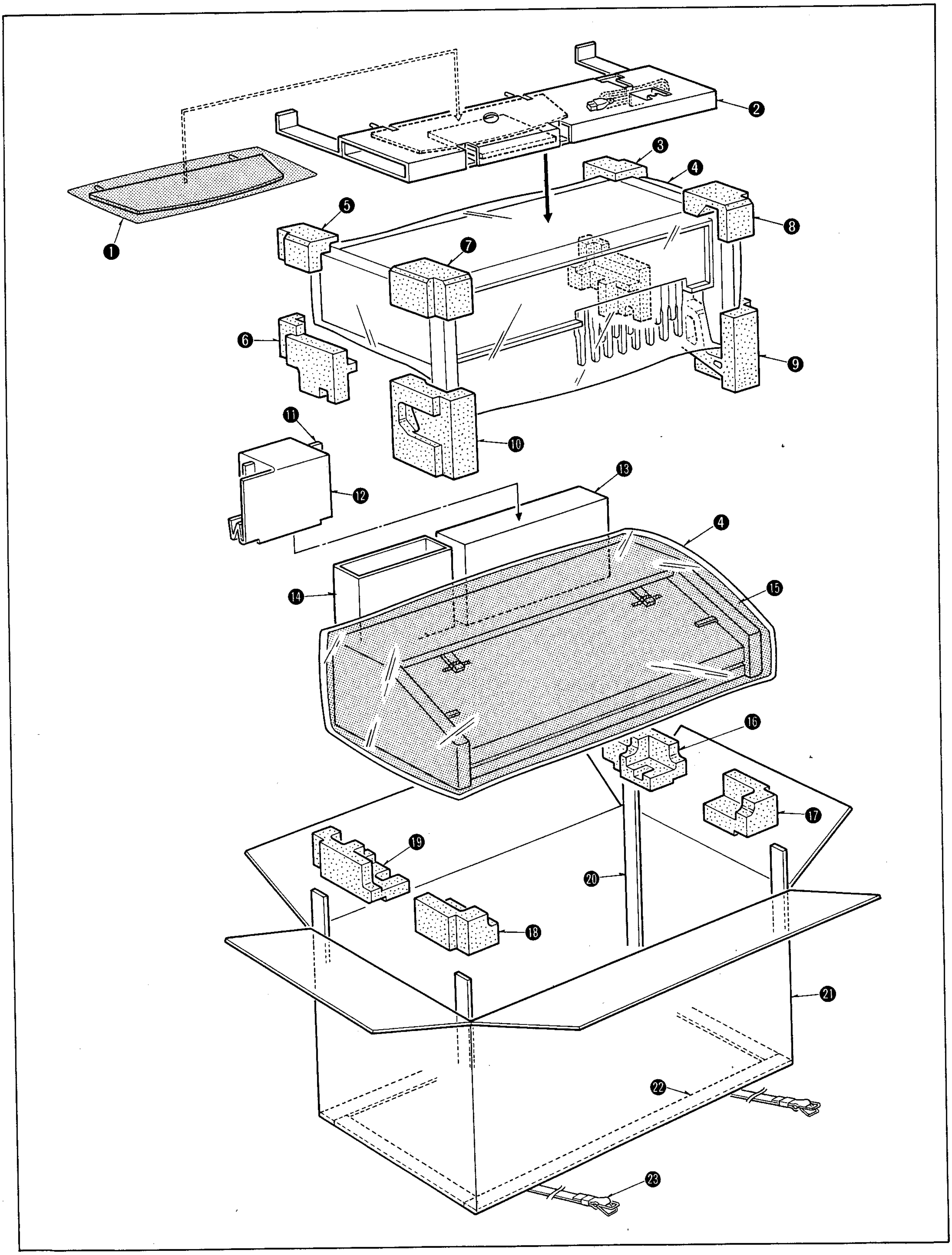
BENCH M XM

	Ref. No.	Part No.	Description	P/S
○	100	QKQGA055AB	Seat	1
	101	SBEG190A	Spanner	1
○	102	QKQGZ083AA	Leg	4

SCREWS & WASHERS

	Ref. No.	Part No.	Description	P/S
	N1	XTW3+10T	Screw	10
	N2	XTW3+10Q	Screw	75
	N3	XTB4+12A	Screw	31
	N4	SNEG2400A	Screw with Washer	2
	N5	XYN3+F6	Screw with Washer	4
	N6	XTB3+5C	Screw	18
	N7	QHDG030AA	Screw with Washer	4
	N8	XTB35+12A	Screw	5
	N9	XYN4+F14	Screw with Washer	4
	N10	XTW3+8JFVC	Screw	3
	N11	XTV3+10G	Screw	8
	N12	XTB35+20A	Screw	9
	N13	XTT4+14A	Screw	6
	N14	XYN4+F25	Screw with Washer	4
	N15	XTB35+20A	Screw	4
	N16	QHDG006AA	Screw	5
	N17	XTT35+10AFVC	Screw	8
	N18	XTB3+8BFVC	Screw	2
	N19	SNEG2660A	Screw	5
	N20	XTWSG2	Screw with Washer	1
	N21	XSN5+85	Screw	2
	N22	XWA5B	Washer	2
	N23	SNEG150A	Washer	2
	N24	XTS3+10AFVC	Screw	6
	N25	XTS35+12A	Screw	15
	N26	XTT4+12AFVC	Screw	8
	N27	XTT4+35AFVC	Screw	15
	N28	XTT4+12A	Screw	4
	N29	SNE499-1	Nut	4
	N30	XYN4+F20FZ	Screw with Washer	4
	N31	XYN4+F20FZ	Screw with Washer	2
	N32	XTT4+16AFZ	Screw	4
	N33	XTB35+16A	Screw	8
	N34	XTN26+6B	Screw	1
	N35	XTT4+16AFZ	Screw	2
	N36	XYN4+F20FZ	Screw with Washer	2
	N37	XTB3+6B	Screw	11
	N38	XNG5BS	Nut	13
	N39	XWA4B	Washer	1
	N40	XTB35+14A	Screw	1
	N41	SNEG360A	Screw	13
	N42	XNH10G	Nut	4
	N43	XWB10B	Washer	4
	N44	XTS4+12A	Screw	24

PACKING



❶
❷
❸
❹
❺
❻
❼
❽
❾
❿
⓫
⓬
⓭
❹
⓮
⓯
⓰
⓱
⓲
⓳
⓴
㉑
㉒
㉓

■ PACKING PARTS

	Ref. No.		Part No.	Description	P/S
				PACKING PARTS	
	1	PE	QPHG039AA	Protection Cover	1
○	2		QPGG0298AA	Music Rack Case	1
○	3	PS	QPNG0507AA	Pad	1
	4	PE	QPFG022AA	Polyethylene Bag	1
○	5	PS	QPNG0506AA	Pad	1
○	6	PS	QPNG0510BA	Pad	1
○	7	PS	QPNG0504AA	Pad	1
○	8	PS	QPNG0505AA	Pad	1
○	9	PS	QPNG0509BA	Pad	1
○	10	PS	QPNG0508BA	Pad	1
○	11		QPGG0306AA	Spacer	1
○	12		QPGG0305AA	Spacer	1
○	13		QPGG0096AAK	Bench Case, Others	1
○	13		QPGG0219AB	Bench Case, M XM	1
○	14		QPGG0301AA	Spacer, Others	1
○	14		QPGG0304AA	Spacer, M XM	1
	15	PE	SPHG280A	Protection Sheet	1
○	16	PS	QPNG0515BA	Pad	1
○	17	PS	QPNG0513BA	Pad	1
○	18	PS	QPNG0512BA	Pad	1
○	19	PS	QPNG0514BA	Pad	1
○	20		QPQG037AA	Prop	4
○	21		QPGG0297AB	Carton	1
○	22		QPQG036AA	Frame	1
	23		SPSG40A	Band	2
				OPERATING INSTRUCTION MANUAL	
○	24		QQFGEA5AA	Operating instruction manual, Others	1
○	24-1		QQTG0314A	ENGLISH	1
○	24		QQFGEA5BA	Operating instruction manual, M	1
○	24-1		QQTG0317A	ENGLISH	1
○	24		QQFGEA5CA	Operating instruction manual, MC	1
○	24-1		QQTG0314A	ENGLISH	1
○	24-2		QQTG0318A	FRANCAIS	1
○	24		QQFGEA5DA	Operating instruction manual, EA EZ	1
○	24-1		QQTG0319A	DEUTSCH	1
○	24		QQFGEA5EA	Operating instruction manaul, EW	1
○	24-1		QQTG0314A	ENGLISH	1
○	24-2		QQTG0318A	FRANCAIS	1
○	24-3		QQTG0319A	DEUTSCH	1
○	24		QQFGEA5FA	Operating instruction manual, EF	1
○	24-1		QQTG0318A	FRANCAIS	1
○	24		QQFGEA5GA	Operating instruction manual, EP XM	1
○	24-1		QQTG0314A	ENGLISH	1
○	24-2		QQTG0320A	ESPANOL	1
○	24		QQFGEA5HA	Operating instruction manual, EH	1
○	24-1		QQTG0318A	FRANCAIS	1
○	24-2		QQTG0319A	DEUTSCH	1
○	24-3		QQTG0321A	NERDERLANDS	1
○	24		QQFGEA5JA	Operating instruction manual, X	1
○	24-1		QQTG0314A	ENGLISH	1
○	24-2		QQTG0320A	ESPANOL	1
○	24-3		QQTG0322A	中文	1
○	24		QQFGEA5KA	Operating instruction manual, XD	1
○	24-1		QQTG0314A	ENGLISH	1
○	24-2		QQTG0322A	中文	1
○	24		QQFGEA5LA	Operating instruction manual, XT	1
○	24-1		QQTG0322A	中文	1